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SOIL INVESTIGATION FOR THE GUADALUPE RIVER PROJECT - REACHES 1 AND 2

Santa Clara County, California

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WOODWARD-CLYDE-SHERARD & ASSOCIATES
Consulting Soil and Foundation Engineers

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PRELIMINARY REPORT

to

MR. GEORGE PRIME, SUPERVISING ENGINEER
SANTA CLARA COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
County Office Building
San Jose, California

on

SOIL INVESTIGATION FOR THE GUADALUPE RIVER PROJECT - REACHES 1 AND 2

Santa Clara County, California

by

WOODWARD-CLYDE-SHERARD AND ASSOCIATES
Consulting Soil & Foundation Engineers
Oakland, California

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ST. LOUIS, MO.
SAN DIEGO, CALIF.
NEW YORK, N. Y.

November 18, 1960

Job No. 4246

Mr. George Prime, Supervising Engineer
Santa Clara County Flood Control
and Water Conservation District
County Office Building
San Jose, California

Dear Sir:

In accordance with the request of Mr. P. Creegan, we are submitting a preliminary report on a soil investigation for the Guadalupe River Project, Reaches 1 and 2 in Santa Clara County, California.

The enclosed report is preliminary in nature and contains information and recommendations that are subject to change.

A complete report, including test results which are still in progress, will be issued at a later date.

The Staff Engineers assigned to this project by our firm were Mr. George E. Hervert and Mr. Don Westphal.

Very truly yours,

WOODWARD-CLYDE-SHERARD & ASSOCIATES

By Stanley F Gizienski
Stanley F. Gizienski, R.E. 10352

lh
4 cc - Creegan and D'Angelo

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PRELIMINARY REPORT

to

MR. GEORGE PRIME, SUPERIVISING ENGINEER

SANTA CLARA COUNTY FLOOD CONTROL

AND WATER CONSERVATION DISTRICT

on

SOIL INVESTIGATION FOR THE

GUADALUPE RIVER PROJECT - REACHES 1 AND 2

Santa Clara County, California

SCOPE

This preliminary report describes a subsurface investigation at the alignment of the proposed Guadalupe River channel straightening and widening project, Reaches 1 and 2. The purpose of the investigation is to provide the following information:

Alviso to San Francisco Bay

1. Identification of subsurface materials in order to determine the portion of the channel dredged material that will have to be spoiled and that portion which will be adequate for use in levee construction.
2. Determination of compressibility and shear strengths of any weak zones under proposed levees.
3. Determination of need for seepage pressure relief at toes of levees.

Montague Road to Alviso

1. Information relative to shear strength of both compacted and uncompacted fill material obtained from all borrow pits having usable material.
2. In-place borrow pit densities and moisture contents compared with anticipated levee density, either compacted or uncompacted.
3. A realistic estimate of the quantity of usable material and the quantity of the material which must be spoiled.
4. Information relative to the compressibility, shear strength and cohesion of the ground on which levees are to be placed.
5. Inclination of fill and excavated slopes.

Gold Avenue Road and Bridge

1. Identification of subsurface materials.
2. Determination of anticipated settlements beneath approach fills.
3. Recommendations for reducing objectionable differential settlements between bridge abutments and approach fills.
4. Determination of inclination of approach fill slopes.
5. Recommendations as to type of bridge foundation pile, capacity and required lengths.

Answers to a number of the above questions are included in this preliminary report; however, studies are still in progress and final recommendations will be included in a later report.

Test borings were made at strategic locations at the sites of the various facilities. Soil samples were continuously examined during the drilling operations and visually identified in the field. Samples were recovered from the holes and were inspected and tested in the laboratory to determine the physical and mechanical properties of the soils encountered. These properties were used together with the results of site reconnaissances in reaching the preliminary conclusions and recommendations reported.

FIELD EXPLORATIONS

Fifty-one exploratory holes were drilled at the locations shown on the site plans, Figs. 1 through 4. The logs of borings of Holes 1 through 44 are shown on Figs. 5 through 32. A profile of subsurface conditions at the proposed Gold Street Bridge is shown on Fig. 33; the logs of borings of the test holes at the Gold Street Bridge and approaches are shown on Figs. 34 through 37. The log of one boring, made at the alignment of the new railroad bridge is shown on Fig. 38. Other borings at this facility are in progress and will be reported soon.

LABORATORY TESTS

The results of triaxial, consolidation, mechanical analyses, and Atterberg Limits tests completed to date are given on unnumbered figures following Fig. 38. Additional triaxial consolidation and permeability tests are in progress and will be reported later.

A summary of the results of the tests to determine the water content, dry density, and unconfined compression strength is given in Table 1; these results are also shown on the logs of borings at the corresponding sample locations.

PROJECT DESCRIPTION

The project involves straightening and widening the existing Guadalupe River channel for about 7 miles. Levees will be constructed on both sides to prevent flooding of adjacent areas during high tide and peak runoff periods. The project is divided into Reaches 1 and 2. Reach 1 covers the area from Coyote Creek, through the Leslie Salt property and continues along the southerly edge of Alviso through a garbage dump to State Highway 113A. Reach 2 extends from the State Highway to the Montague Road bridge. Also included are relocations of a railroad and Gold Street Bridge.

REACH 2

(Holes 1 through 17)

SOIL CONDITIONS

This reach extends through an agricultural area with a few farm homes located near the proposed improvements. Near Montague Road an industrial plant is located along the river banks.

The borings made on the banks in this reach show that the soils consist of alluvial materials. Generally, the soil profile is discontinuous and erratic between borings. The soils consist of soft to firm clayey silt, silty clay, and sandy clay interpersed with loose to medium dense silty sand and clayey sand.

Borings made in the channel reveal stream deposits consisting of soft silty clays and loose silty sands extending to depths varying from 5 to 15 ft.

The depth to free water within this reach varied from 5 to 12 ft below the ground surface at the hole location at the time of drilling. The elevations of the ground surface at the hole locations are shown on the logs of borings. In some areas the depth to water is influenced by the amount or duration of irrigation that is taking place in the adjacent orchards.

SLOPE RECOMMENDATIONS

Existing Conditions. Visual examination of this reach in the field shows the existing banks to be very steep and covered with brush in extensive stretches of the channel. It is our opinion that most of the bank sloughing and sliding in evidence is the result of undercutting and erosion by the stream flows. Some has resulted from excessively steep slopes in areas of weak soils. The condition within this reach has been aggravated by the poor alignment of the creek channel.

Design Slopes. It is recommended that cut slopes in native material not exceed an inclination of 2 to 1 (2 horizontal to 1 vertical). Inclination of fill slopes in areas where the new alignment crosses the existing channel and levee slopes should not exceed 2½ to 1. Where fill is placed in the old channel and is the side slope of the new channel it will be necessary to excavate all loose and weak material from the bottom of the old channel. The depth of excavation may vary from 5 to 15 ft in such areas. Where the old channel will be filled completely it will not be necessary to remove the existing channel deposits.

Fill Material. The soils excavated in this reach can be used satisfactorily for levee construction. Generally the specifications should require that the more impervious material be placed on the inside of the levee and the more pervious on the landward side. Compaction of the material should be controlled and organic materials excluded from the fill. The material should be compacted to at least 95 percent of the maximum density determined by the Standard Proctor Compaction test.

It is estimated that about 10 percent of the total excavated material in this area will be unsuitable for use in compacted fill; about 50 percent of this amount is unsuitable in uncompacted fill.

Seepage. The borings generally show the foundation soils to be impervious. The silty sands contain a sufficient percentage of fines to classify them as semi-impervious. The only exceptions appear to be in Holes 4, 8, and 17 at a depth of 13 ft. It is estimated that the permeability of these soils approach 1×10^{-4} cm/sec. Additional studies will have to be made to determine if extensive seepage measures are necessary. These would consist of either a landward blanket if there is sufficient right-of-way or relief wells.

REACH 1

(Holes 18 through 44)

SOIL CONDITIONS

This reach can be divided into two areas. The first area is marginal land near Alviso that is currently being used for a garbage and trash dump. It has been explored by Holes 18 through 21 and B1 through B6. The second area is also marginal land and has been reclaimed for use by the Leslie Salt Company for evaporation ponds. This area was explored by Holes 22 through 44.

Dump Area. Hole 18, drilled in the existing channel, shows that soft Bay and stream deposits extend to a depth of 15 ft. Holes 19 and 21 in the dump encountered garbage extending to 5 and 12 ft below the surface. Bay Mud, 12 ft thick, was found below the garbage in Hole 19. Hole 21 revealed no Bay Mud below the garbage. Hole 20, outside of the dump area encountered no trash or Bay Mud. Below the Bay Mud in Holes 19 and 21 we found soft to firm silty and sandy clays and loose to medium dense sandy or clayey silts and silty sands.

The "B" series holes, drilled along the proposed alignment of Gold Street Bridge and approaches, are discussed in greater detail later in this report. The "B" series borings made in the vicinity of the new channel alignment show that the garbage varies in thickness from 6 to 8 ft; the thickness of the underlying Bay Mud varies from 6 to 27 ft. Below the Bay Mud firm to stiff clays and medium dense to dense sand and gravels are encountered.

Leslie Salt Area. The borings made in the bottom of existing channel show that the soft Mud deposits vary in thickness from 3 to 11 ft and are underlain by alternating layers of stiff to very stiff clays and loose to medium dense silts or sands.

The borings made along the banks indicate that 3 to 6 ft of excavated Bay Mud has been placed to form the existing levees. This Mud is desiccated above the water level. These levees have performed in a relatively satisfactory manner in the past. Soft Bay Mud interpersed with layers of peat underlies the levee system and varies in thickness from 5 to 25 ft. Below the soft mud the soils consist of layers of stiff to very stiff clays and loose to medium dense sands and silts.

SLOPE RECOMMENDATIONS

Existing Conditions. Within this reach the present levees have been constructed over a period of years and continual maintenance has been required. Most of the repairs consist of raising the levees periodically to compensate for the settlement that has taken place. We have been informed by officials of the Leslie Salt Company that it has been necessary to add 2 to 3 ft of additional fill approximately every 5 years in order to maintain the required top elevation of the levees. The settlement varies depending on the thickness of the Bay Mud, presence of peat layers and shrinkage by desiccation of the material within the levee.

The side slopes in the channel vary from 3 to 1 to 15 to 1; levee slopes vary from 2 to 1 to 4 to 1. Erosion of all slopes due to wave and current action is in evidence over considerable lengths of the system.

Design Slopes. It is recommended that levee slopes constructed of uncompacted excavated material not exceed an inclination of 4 to 1 for levees up to 10 ft in height and 5 to 1 for higher levees in that portion of the levee system extending from the State Highway Bridge to the bay. The slopes in the excavated channel in the soft Bay Mud should not exceed 5 to 1. These recommendations are based on the assumption that excavated Bay Mud will be used in the levees. They are subject to change after further studies based on final alignment of the proposed channel and completion of the remainder of our tests.

Fill Material. The foundation soils within this reach are generally too weak to support heavy construction equipment; therefore, the channel excavation, as well as the levees, will probably have to be done by water borne equipment. The silts and clays are considered to be impervious.

Since the required excavation exceeds the fill requirements it is recommended that the specifications be selective and exclude peaty type material from the levee fill. It is estimated that at least 10 percent of the material in this area will be unsuitable for satisfactory use in levee constrcution. Placement of the dredged material should be controlled to limit the lift thickness to 2 ft and the materials allowed to drain at least 2 weeks before adding the next lift. The construction procedure will have to be determined in the field since the materials being dredged will vary in strength as well as drainage characteristics. If the dredged material is placed too rapidly pore water pressure will develope resulting in possible slope failures.

Seepage. Granular material was encountered in the borings at or well below the present channel bottom. Seepage problems landward of the levee system are not expected to develop except in the dump area where the garbage fill is very hetergeneous. It should be possible to reduce the risk of boils by blanketing the channel side with the excavated material. The thickness of the blanket should be at least 10 ft.

Gold Street Bridge. A soil profile based on the borings made along the bridge alignment is shown on Fig. 33. The borings along the approaches show that the garbage fill extends to depths varying from 6 to 8 ft and is underlain by Bay Mud varying in thickness from 0 to 7 ft. In the vicinity of the bridge proper the thickness of the Bay Mud varies from 15 to 25 ft. The Bay Mud in the area is underlain by layers of firm silty clay and loose to medium dense clayey or silty sand. The thickness of this latter deposit varies considerably as indicated on the profile. Below about El. -40 dense coarse silty sand with gravel is encountered.

The water table was encountered 3 to 6 ft below the ground surface at the time of drilling.

Bridge Foundation. Under the proposed plans a maximum of 18 ft of fill will be placed at the abutments of the bridge. The presence of the poor quality garbage fill and underlying soft Bay Mud indicates considerable settlement can be expected along the proposed alignment.

It is recommended that the bridge be supported on piles. The exact depth has not yet been determined and additional information is being obtained in the field. With the present information and under the assumption that a 40 ton capacity pile will be used, it appears that the piles would have to be driven to elevations ranging from -55 to

-65, making a total pile length of about 70 ft. The piles would be essentially end bearing in the dense sands.

Settlement of the approach fills at the bridge abutments, and the effects of drag in the piles have not been fully evaluated at this time. We will provide this information as it develops.

APPENDIX TO BORING LOGS

STANDARD DRILLING AND SAMPLING TECHNIQUES

The exploratory holes at the site were drilled with a truck or barge mounted, continuous-flight power auger, 6 in. in diameter. As the auger is advanced, the drilling resistance is qualitatively observed, and the soil cuttings returned to the surface by the auger are continuously examined and classified on the field logs.

Sampling in the main channel was accomplished by wash boring methods. The hole was advanced by washing out the soil with water applied under pressure through a 1½-in. pipe. At the desired depth an undisturbed soil sample is recovered by driving a 2-in. diameter modified California type sampler or a 3-in. diameter Shelby sampler driven with a 75 lb hammer.

Frequent representative undisturbed soil samples are recovered with a modified California type sampler, 2 in. in diameter. The inside of the sampler is fitted with brass tubes having an inner diameter of 1.94 in. As the sampler is driven with a 140-lb weight falling a free vertical distance of 30 in., the number of blows required to advance it a distance of 1 ft, after the first 6 in. of penetration, is recorded and forms the "blow count". This value is a close measure of compactness in granular soils, and a general indicator of clay density.

When the sampler is withdrawn from the test hole, the brass tubes containing the soil samples are removed, carefully packaged to preserve the natural moisture content, and returned immediately to the laboratory for testing.

The samples are identified by two hyphenated numbers, the first of which indicates the test hole, and the second the vertical position of the sample in the test hole. For example, the second sample recovered from Hole 1 would be designated as 1-2, and this identification is maintained throughout the entire investigation and on the enclosed logs of borings. The key to the information adjacent to the sample shown on the boring logs is as follows:

Sample Number
Number of blows to drive sampler
WC - Water Contet, percent of dry weight
DD - Dry Density, pcf
UN - Unconfined Compressive Strength, psf

TABLE 1 - SUMMARY OF TEST RESULTS

SAMPLE NUMBER	SURFACE ELEVATION	SAMPLE DEPTH, Ft.	WATER CONTENT, % Dry Wt.	DRY DENSITY, pcf	UNCONFINED COMPRESSIVE STRENGTH, psf	STANDARD PENETRN. Blows/Ft.	CLASSIFICATION
1-1	22.5	4½	14	91	3300	9	Clayey Sand
1-2		8½	13	94	-	7	Clayey Silty Sand
1-3		13½	43	76	560	4	Sandy Silty Clay
1-4		18½	45	76	750	5	Sandy Silty Clay
1-5		23½	38	79	1240	5	Sandy Silty Clay
1-6		28½	31	89	600	6	Sandy Silty Clay
3-1	18.5	4½	22	91	2180	4	Sandy Silty Clay
3-2		8½	27	96	5660	7	Silty Clay
3-3		13½	21	108	2990	10	Silty Clay
3-4		18½	26	99	1310	10	Sandy Silty Clay
3-5		25½	26	99	2180	22	Sandy Silty Clay
3-6		33½	24	101	1310	9	Sandy Silty Clay
4-1	19.0	3	22	97	1870	5	Fine Sandy Clay
4-2		6	35	85	690	1	Fine Sandy Silt
4-3		12	-	-	-	6	Fine Sandy Silt
4-4		15½	34	80	-	3	Silty Clay
4-5		20½	27	97	2300	8	Silty Clay
4-6		25½	-	-	-	6	Fine Sandy Clay
4-7		35½	-	-	-	12	Fine Silty Sand
6-1	16.7	4½	19	92	1310	4	Silty Clayey Sand
6-2		8½	37	85	-	4	Sandy Silty Clay
6-3		13½	38	89	250	2	Sandy Silty Clay
6-4		18½	48	71	1490	8	Sandy Silty Clay
6-5		23½	27	96	1870	10	Clay w/Peat
6-6		28½	25	101	940	8	Sandy Silty Clay
6-7		38½	19	110	1250	22	Silty Clay
7-1	13.2	3	8	88	2860	7	Silty Clay
7-2		8½	33	89	-	4	Sandy Clay
7-3		12½	32	88	-	5	Sandy Clay
7-4		15½	37	80	1120	7	Sandy Clay
7-5		20½	39	78	1060	7	Sandy Clay
7-6		25½	93	43	1000	8	Silty Clay & Peat
7-7		35½	18	112	9680	21	Sandy Silty Clay

TABLE 1 - SUMMARY OF TEST RESULTS (CONTINUED)

SAMPLE NUMBER	SURFACE ELEVATION	SAMPLE DEPTH, Ft.	WATER CONTENT, % Dry Wt.	DRY DENSITY, pcf	UNCONFINED COMPRESSIVE STRENGTH, psf	STANDARD PENETRN. Blows/Ft.	CLASSIFICATION
8-1	14.0	4½	26	89	2180	5	Clayey Silty Sand
8-2		8½	35	85	690	4	Clayey Silty Sand
8-3		13½	-	-	-	4	Silty Sand
8-4		18½	-	-	-	7	Silty Sand
8-5		28½	23	103	560	22	Sand & Gravel
10-1	10.5	3	14	89	4170	7	Silty Clay
10-2		6½	16	92	1240	5	Silty Clay
10-3		10½	37	83	1810	5	Silty Clay
10-4		15½	29	95	2620	7	Silty Clay
10-5		20½	38	82	1180	10	Sandy Silty Clay
10-6		26	44	76	870	4	Sandy & Clay Layers
10-7		35½	16	115	690	38	Gravelly Sand
11-1	8.2	4½	16	91	940	5	Sandy Silty Clay
11-2		8½	34	83	1810	5	Sandy Silty Clay
11-3		13½	33	90	-	7	Fine Sandy Clay
11-4		19	24	102	1310	7	Clayey Sand
11-5		24½	-	-	-	10	Clayey Sand
11-6		31½	35	87	-	2	Sand & Gravel
13-1	-1	5	40	79	180	Shelby	Clayey Sand to Silty Sand
13-2		7½	-	-	-	Shelby	Clayey Sand to Silty Sand
14-1	7.0	3	22	102	5710	10	Silty Clay w/Gravel
14-2		6½	20	110	7330	14	Clay to Silty Clay
14-3		10½	24	101	-	9	Clay to Silty Clay
14-4		16	25	102	1490	5	Silty Clay w/Gravel
14-5		20½	36	86	1740	10	Sandy Silty Clay
14-6		28	24	104	750	11	Clayey Silty Sand
14-7		35½	17	110	-	33	Sand & Gravel
16-1	2	2½	-	-	-	Shelby	Clayey Sand
16-2		9				Shelby	Silty Clay w/Peat
16-3		16				Shelby	Silty Clay

TABLE 1 - SUMMARY OF TEST RESULTS (CONTINUED)

SAMPLE NUMBER	SURFACE ELEVATION	SAMPLE DEPTH, Ft.	WATER CONTENT, % Dry Wt.	DRY DENSITY, pcf	UNCONFINED COMPRESSIVE STRENGTH, psf	STANDARD PENETRN. Blows/Ft.	CLASSIFICATION
17-1	0.8	5	30	104	1310	3	Sandy Silty Clay
17-2		8½	27	99	4100	13	Sandy Silty Clay
17-3		13½	-	-	-	38	Clayey Silty Sand w/Gravel
17-4		18½	28	98	1240	11	Sandy Silty Clay
17-5		23½	30	92	3110	9	Sandy Silty Clay
17-6		30½	29	101	-	15	Fine Silty Sand
18-1	-5	2½	-	-	-	Shelby	Silty Clay w/Peat
18-2		7½	92	47	860	Shelby	Silty Clay w/Peat
18-3		15	90	34	370	Shelby	Silty Clay
18-4		18	-	-	-	12	Silty Sand w/Gravel
19-1	4	8½	52	69	870	2	Silty Clay & Peat
19-2		14	77	55	-	1	Silty Clay & Peat
19-3		19	52	68	370	8	Silty Clay & Peat
19-4		23½	28	100	3920	17	Sand & Gravel
19-5		28½	24	102	2860	12	Sandy Silty Clay
21-1	8.0	14½	21	108	5710	17	Silty Sandy Clay
21-2		20½	20	107	-	7	Sandy Clay
21-3		25½	29	94	3480	11	Silty Clay
21-4		35½	33	89	1620	11	Silty Clay
22-1	3.6	3½	62	61	-	3	Silty Clay w/Peat
22-2		8½	94	46	500	5	Silty Clay w/Peat
22-3		19½	81	-	-	6	Silty Clay w/Peat
22-4		24	24	103	5540	25	Clay
22-5		34	22	100	560	2	Silty Sand
23-1	8.0	4½	81	51	560	6	Silty Clay
23-2		8½	34	85	1740	10	Silty Clay
23-3		13½	33	87	2860	9	Clayey Peat
23-4		18½	21	106	5970	20	Gravelly Clay
23-5		23½	-	-	-	25	Sandy Silty Clay
23-6		28½	19	111	1490	11	Sandy Silty Clay
23-7		38½	-	-	-	23	Clayey Sand

TABLE 1 - SUMMARY OF TEST RESULTS (CONTINUED)

SAMPLE NUMBER	SURFACE ELEVATION	SAMPLE DEPTH, Ft.	WATER CONTENT, % Dry Wt.	DRY DENSITY, pcf	UNCONFINED COMPRESSIVE STRENGTH, psf	STANDARD PENETRN. Blows/Ft.	CLASSIFICATION
24-1	-5	12½	21	108	2360	6	Sandy Clay & Silty Clay
24-2		20	26	101	500	4	Sandy Clay & Silty Clay
24-3		28	21	102	1930	10	Silty Clay w/Clayey Sand
24-4		38	25	108	440	8	Silty Clay w/Clayey Sand
26-1	-6	2	-	-	-	Shelby	Silty Clay
26-2		12	18	113	9970	20	Silty Clay
26-3		23½	22	106	6510	20	Silty Clay
26-4		36	27	98	1120	6	Silty Clay to Clayey Silt
26-5		46	-	-	-	8	Silty Clay
28-1	-7	2½				Shelby	Silty Clay
28-2		9				Shelby	Silty Clay
28-3		10½	19	110	2420	20	Silty Clay
28-4		18	26	98	2360	14	Silty Clay
28-5		28	24	104	3360	15	Silty Clay
28-6		45	-	-	-	12	Silty Clay
29-1	9.6	3½				5	Silty Clay w/Peat
29-2		6½				3	Silty Clay w/Peat
29-3		10				2	Silty Clay w/Peat
29-4		15				Shelby	Silty Clay w/Peat
29-5		20				Shelby	Silty Clay w/Peat
29-6		24				13	Silty Clay
29-7		31				11	Clay
29-8		37				11	Clay
31-1	8.2	5	60	62	870	4	Sandy Silty Clay w/Peat
31-2		10½			-	2	Clay w/Peat
31-3		15½			-	7	Clay w/Peat
31-4		20½	24	103	1180	7	Silty Clay
31-5		25½	24	103	3420	15	Silty Clay
31-6		35½	20	110	3980	18	Sandy Silty Clay
31-7		45½	18	115	4960	24	Sandy Silty Clay

TABLE 1 - SUMMARY OF TEST RESULTS (CONTINUED)

SAMPLE NUMBER	SURFACE ELEVATION	SAMPLE DEPTH, Ft.	WATER CONTENT, % Dry Wt.	DRY DENSITY, pcf	UNCONFINED COMPRESSIVE STRENGTH, psf	STANDARD PENETRN. Blows/Ft.	CLASSIFICATION
34-1	-5	6	-	-	-	Shelby	Silty Clay w/Sand Lenses
34-2		10	-	-	-	15	Fine Sandy Clay
34-3		16	25	102	5850	13	Silty Clay
34-4		27½	19	108	5150	26	Silty Clay
34-5		36	-	-	-	7	Silty Clay
34-6		41½	24	102	1680	7	Silty Clay
35-1	6.4	4½	56	64	2240	5	Sandy Silty Clay
35-2		8½			-	1	Silty Clay w/Peat
35-3		13½	64	60	560	1	Silty Clay w/Peat
35-4		18½	70	57	370	2	Silty Clay
35-5		25	21	108	2180	7	Sandy Silty Clay
35-6		32	26	102	1370	14	Clayey Silty Sand
36-1	8.8	4½	94	45	750	2	Silty Clay w/Peat
36-2		10½	90	48	310	1	Silty Clay w/Peat
36-3		20	93	49	440	1	Silty Clay
36-4		28½	-	-	-	3	Silty Clay
36-5		35½	-	-	-	5	Clayey Silty Sand
36-6		40	-	-	-	9	Silty Sand w/Peat
38-1	8.8	4½	75	53	690	3	Silty Clay w/Peat
38-2		10½	112	40	690	1	Silty Clay w/Peat
38-3		18½			-	7	Clay
38-4		25½	24	101	2240	15	Silty Sandy Clay
38-5		35½	28	95	3680	16	Clay w/Silty Clay
38-6		45½	19	111	4730	30	Silty Clay
40-1	8.5	4½	96	45	500	1	Silty Clay w/Peat
40-2		8½	92	47	440	1	Clay w/Peat
40-3		14	77	53	1000	1	Clay w/Peat
40-4		18½	63	59	190	2	Clayey Shell Bed
40-5		23½	25	99	1430	9	Sandy Silty Clay
40-6		29	27	97	1490	8	Sandy Silty Clay

TABLE 1 - SUMMARY OF TEST RESULTS (CONTINUED)

SAMPLE NUMBER	SURFACE ELEVATION	SAMPLE DEPTH, Ft.	WATER CONTENT, % Dry Wt.	DRY DENSITY, pcf	UNCONFINED COMPRESSIVE STRENGTH, psf	STANDARD PENETRN. Blows/Ft.	CLASSIFICATION
41-1	8.2	3½	48	52	1370	3	Silty Clay w/Peat
41-2		8½	84	50	370	1	Silty Clay w/Peat
41-3		13½	82	51	370	1	Silty Clay w/Peat
41-4		18½				2	Silty Clay
41-5		23½	23	105	4360	22	Clay
41-6		28½	-	-	-	27	Clay
41-7		38½	30	94	3980	20	Clay
41-8		48½	-	-	-	7	Silty Sand
42-1	7.9	3½	69	55	750	4	Silty Clay w/Peat
42-2		9	127	35	370	1	Silty Clay w/Peat
42-3		18½	51	66	440	3	Sandy Silty Clay w/Shells
42-4		27½	28	96	1000	8	Clay to Silty Clay
42-5		39½	30	88	-	7	Silty Sand
42-6		49½	12	124	-	20	Sand & Gravel
43-1	8.0	3½	62	57	870	3	Clay & Peat
43-2		7				1	Silty Clay w/Peat
43-3		11	-	-	-	1	Silty Clay w/Peat
43-4		15½	83	50	690	1	Silty Clay w/Peat
43-5		21	28	94	1430	5	Sandy Silty Clay w/Shells
43-6		25½	21	107	1490	10	Clayey Sand
43-7		35½	-	-	-	16	Silty Sand
43-8		43½	-	-	-	16	Silty Sand
44-1	8.6	3½	44	-	-	6	Clay
44-2		9	72	56	500	2	Silty Clay w/Peat
44-3		13½				1	Silty Clay
44-4		23	65	61	500	1	Sandy Silty Clay w/Shells
44-5		33½	29	93	4300	25	Clay
44-6		44	12	118	-	24	Sand & Gravel

TABLE 1 - SUMMARY OF TEST RESULTS (CONTINUED)

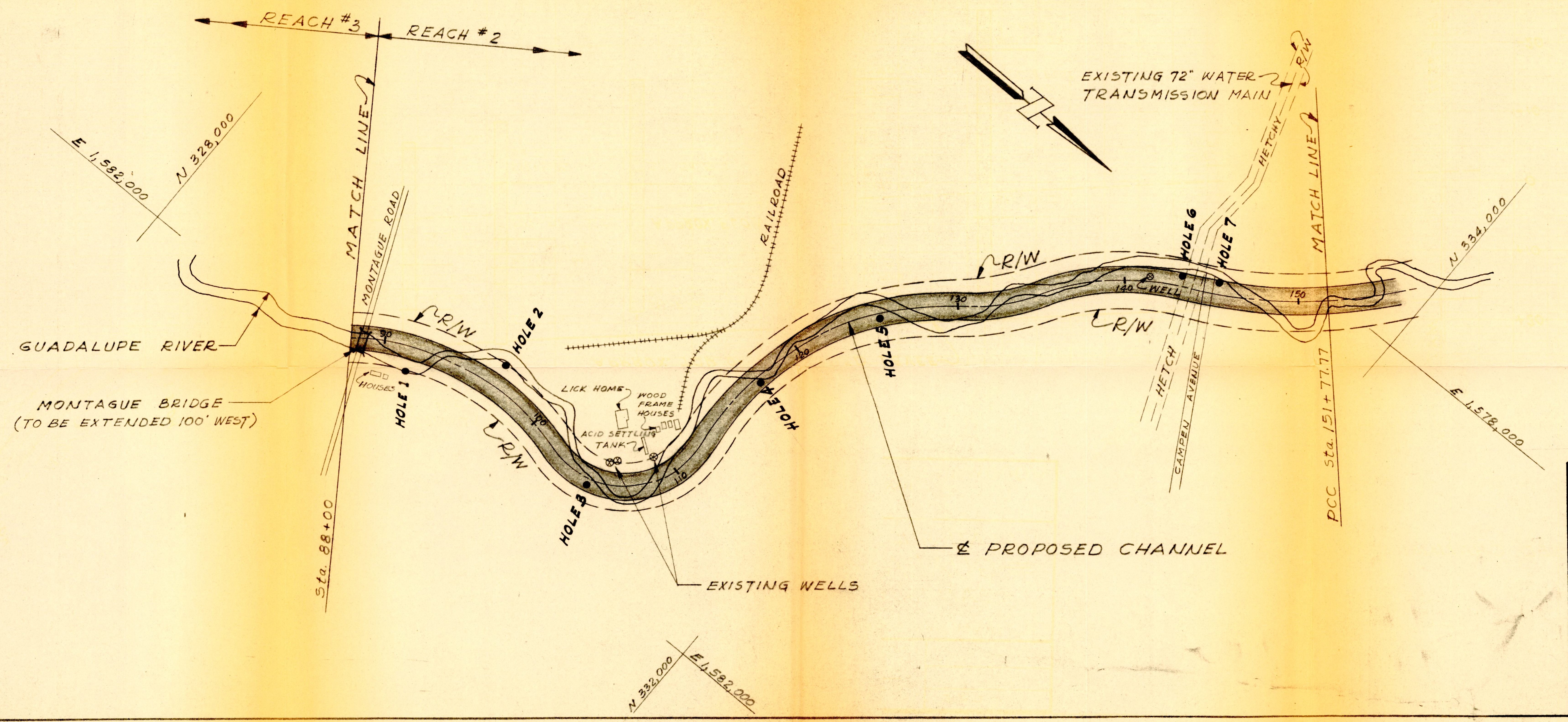
SAMPLE NUMBER	SURFACE ELEVATION	SAMPLE DEPTH, Ft.	WATER CONTENT, % Dry Wt.	DRY DENSITY, pcf	UNCONFINED COMPRESSIVE STRENGTH, psf	STANDARD PENETRN. Blows/Ft.	CLASSIFICATION
B1-1	8	13½	22	106	4850	10	Silty Clay
B1-2		18½	26	99	1370	11	Sandy Silt
B1-3		23½	28	95	600	6	Silty Clay
B1-4		34	32	89	3360	8	Silty Clay
B2-1	7	13½	24	100	3680	8	Silty Clay
B2-2		18½	24	-	-	12	Silty Clay
B2-3		20½	29	95	1490	8	Clayey Silt
B2-4		28½	33	89	2550	8	Silty Clay
B2-5		39½	31	91	3110	15	Sandy Silty Clay
B3-1	3	10½	40	81	1000	2	Silty Clay
B3-2		20	25	101	-	5	Silty Clay
B3-3		30	39	81	750	5	Silty Clay
B3-4		40	19	108	-	8	Silty Sand
B3-5		48½	10	130	-	35	Silty Sand w/Gravel
B4-1	7	13	112	40	370	1	Silty Clay w/Peat
B4-2		18	103	43	440	1	Silty Clay w/Peat
B4-3		24½	86	49	440	2	Silty Clay w/Peat
B4-4		36	45	76	810	6	Silty Clay
B4-5		43½	21	104	-	12	Silty Sand w/Gravel
B5-1	9	3½	24	-	-	30	Miscellaneous Fill
B5-2		9½	84	49	-	4	Silty Clay
B5-3		13½	29	93	3110	9	Silty Clay
B5-4		18½	-	-	-	8	Sandy Clay
B5-5		23½	28	94	1240	5	Silty Clay
B5-6		28½	33	89	4100	12	Silty Clay
B5-7		34½	24	98	-	16	Fine Sand
B6-1	2	3½	29	91	2500	9	Silty Clay
B6-2		8½	21	107	3180	11	Sandy Clay
B6-3		14½	18	112	-	14	Sand & Gravel
B6-4		18½	31	91	3050	13	Silty Clay
B6-5		25½	25	102	1620	7	Clayey Sand

PLATE 1-PLAN-PROFILE-F.A.S.
CLEARPRINT PAPER CO., S.F. CAL.
NO. 1000H-1

PROFILE
NOTE BOOK
NO. ____
SURVEYED ____
PLOTTED ____
GRADES CHECKED ____
B. M.S NOTED ____
STRUCTURE NOTAT'NS CH'K'D
BY
DATE

LEGEND:

L. = Loose
Stf. = Stiff
V. = Very
D. = Dense
M.D. = Medium Dense
C. = Clay or Clayey
Sa. = Sand or Sandy
Si. = Silt or Silty



PLAN
NOTE BOOK
NO. ____
SURVEYED ____
PLOTTED ____
ALIGNMENT CHECKED ____
RT. OF WAY CHECKED ____
BY
DATE

WOODWARD, CLYDE, SHERARD & ASSOCIATES
CONSULTING CIVIL ENGINEERS
1150 - 28th STREET
OAKLAND, CALIFORNIA

PLAN AND PROFILE OF BORINGS
GUADALUPE RIVER
SANTA CLARA COUNTY

DATE 11 NOV. 1960
SCALE VERT: 1" = 10' HORIZ: 1" = 400'

DESIGNED BY:
CHECKED BY:
DRAWN BY: C.R.E.
APPROVED BY:
DWG. NO. 4246-1

(FIG. 1)

PLATE 1 · PLAN · PROFILE - F. A. S.
CLEARPRINT PAPER CO., S. F. CAL.
NO. 1000H-1

PROFILE
NOTE BOOK
NO. ____
SURVEYED ____
PLOTTED ____
GRADES CHECKED ____
B. M.S NOTED ____
STRUCTURE NOTAT'NS CH'K'D
BY
DATE

PLAN
NOTE BOOK
NO. ____
SURVEYED ____
PLOTTED ____
ALIGNMENT CHECKED ____
RT. OF WAY CHECKED ____
BY
DATE

WOODWARD, CLYDE, SHERARD & ASSOCIATES
CONSULTING CIVIL ENGINEERS
1150 - 28th STREET
OAKLAND, CALIFORNIA

PLAN AND PROFILE OF BORINGS
GUADALUPE RIVER
SANTA CLARA COUNTY

DATE: 11 NOV. 1960
SCALE: VERT: 1" = 10'
HORIZ: 1" = 400'

DESIGNED BY: ____
CHECKED BY: ____
DRAWN BY: C.R.E.
APPROVED BY: ____
DWG. NO. 4246-2

(FIG. 2)

LEGEND:

L. = Loose
Stf = Stiff
V. = Very
D. = Dense
M.D. = Medium Dense
C. = Clay or Clayey
Sa. = Sand or Sandy
Si. = Silt or Silty

WOODWARD, CLYDE, SHERARD & ASSOCIATES
CONSULTING CIVIL ENGINEERS
1150 - 28th STREET
OAKLAND, CALIFORNIA

PLAN AND PROFILE OF BORINGS
GUADALUPE RIVER
SANTA CLARA COUNTY

DATE: 11 NOV. 1960
SCALE: VERT: 1" = 10'
HORIZ: 1" = 400'

DESIGNED BY:
CHECKED BY:
DRAWN BY: C.R.E.
APPROVED BY:
DWG. NO. 4246-3

(FIG. 3)

LEGEND:

L. = Loose
Stf. = Stiff
V. = Very
D. = Dense
M.D. = Medium Dense
C. = Clay or Clayey
Sa. = Sand or Sandy
Si. = Silt or Silty

WOODWARD, CLYDE, SHERARD & ASSOCIATES
CONSULTING CIVIL ENGINEERS
1150 - 28th STREET
OAKLAND, CALIFORNIA

PLAN AND PROFILE OF BORINGS
GUADALUPE RIVER
SANTA CLARA COUNTY

DATE: 11 NOV. 1960
SCALE: VERT: 1" = 10'
HORIZ 1" = 400'

DESIGNED BY:
CHECKED BY:
DRAWN BY: C.R.E.
APPROVED BY:
DWG. NO. 4246-4

(FIG. 4)

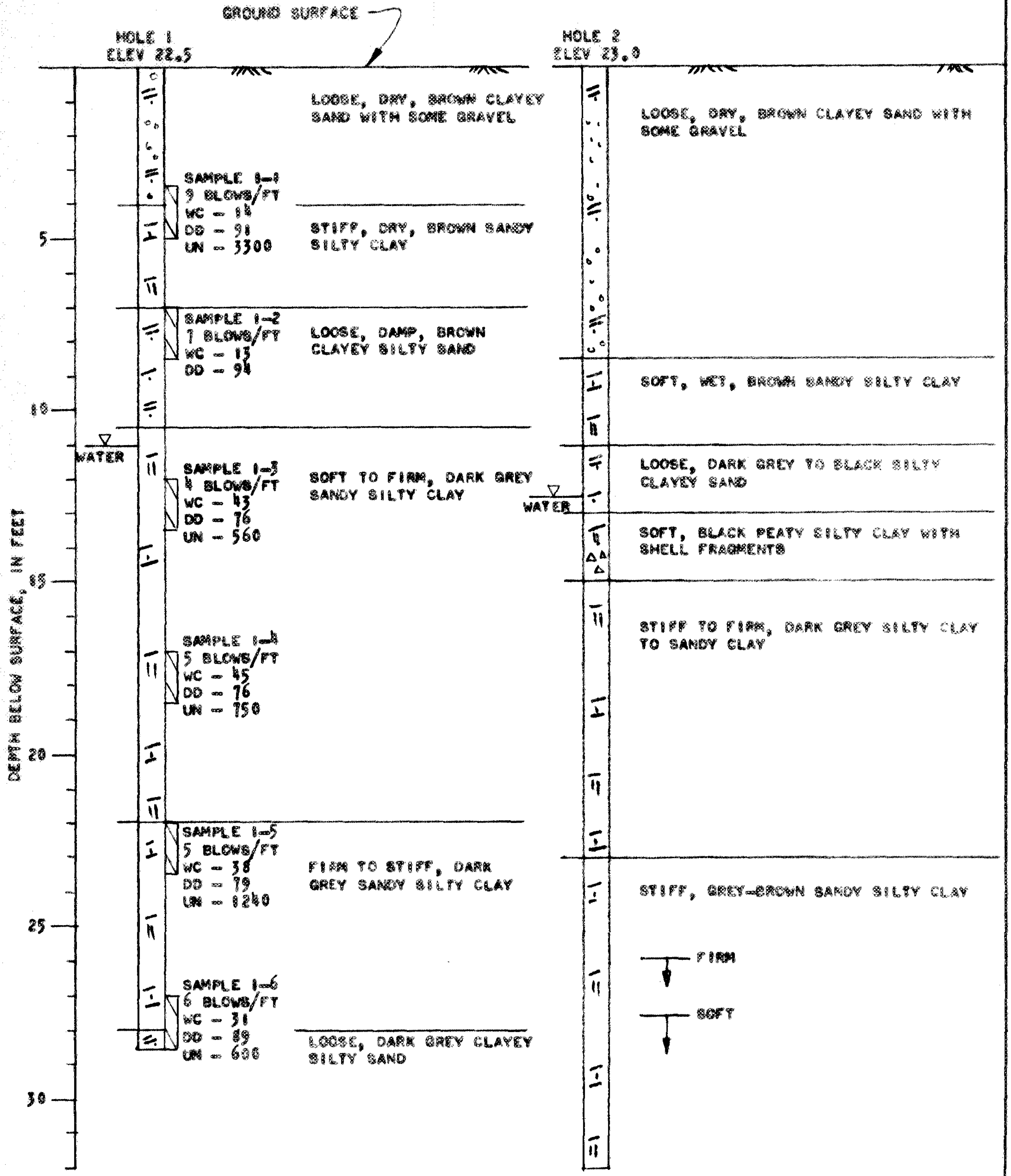

GROUND SURFACE
HOLE 1
ELEV 22.5
HOLE 2
ELEV 23.0
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
LOOSE, DRY, BROWN CLAYEY SAND WITH SOME GRAVEL
SAMPLE 1-1
9 BLOWS/FT
WC - 16
DD - 91
UN - 3300
STIFF, DRY, BROWN SANDY SILTY CLAY
SAMPLE 1-2
7 BLOWS/FT
WC - 13
DD - 94
LOOSE, DAMP, BROWN CLAYEY SILTY SAND
WATER
SAMPLE 1-3
4 BLOWS/FT
WC - 43
DD - 76
UN - 560
SOFT TO FIRM, DARK GREY SANDY SILTY CLAY
SAMPLE 1-4
5 BLOWS/FT
WC - 45
DD - 76
UN - 750
SAMPLE 1-5
5 BLOWS/FT
WC - 38
DD - 79
UN - 1240
FIRM TO STIFF, DARK GREY SANDY SILTY CLAY
SAMPLE 1-6
6 BLOWS/FT
WC - 31
DD - 89
UN - 600
LOOSE, DARK GREY CLAYEY SILTY SAND
LOOSE, DRY, BROWN CLAYEY SAND WITH SOME GRAVEL
SOFT, WET, BROWN SANDY SILTY CLAY
LOOSE, DARK GREY TO BLACK SILTY CLAYEY SAND
WATER
SOFT, BLACK PEATY SILTY CLAY WITH SHELL FRAGMENTS
STIFF TO FIRM, DARK GREY SILTY CLAY TO SANDY CLAY
STIFF, GREY-BROWN SANDY SILTY CLAY
FIRM
SOFT

FIG. 5 — LOGS OF BORINGS

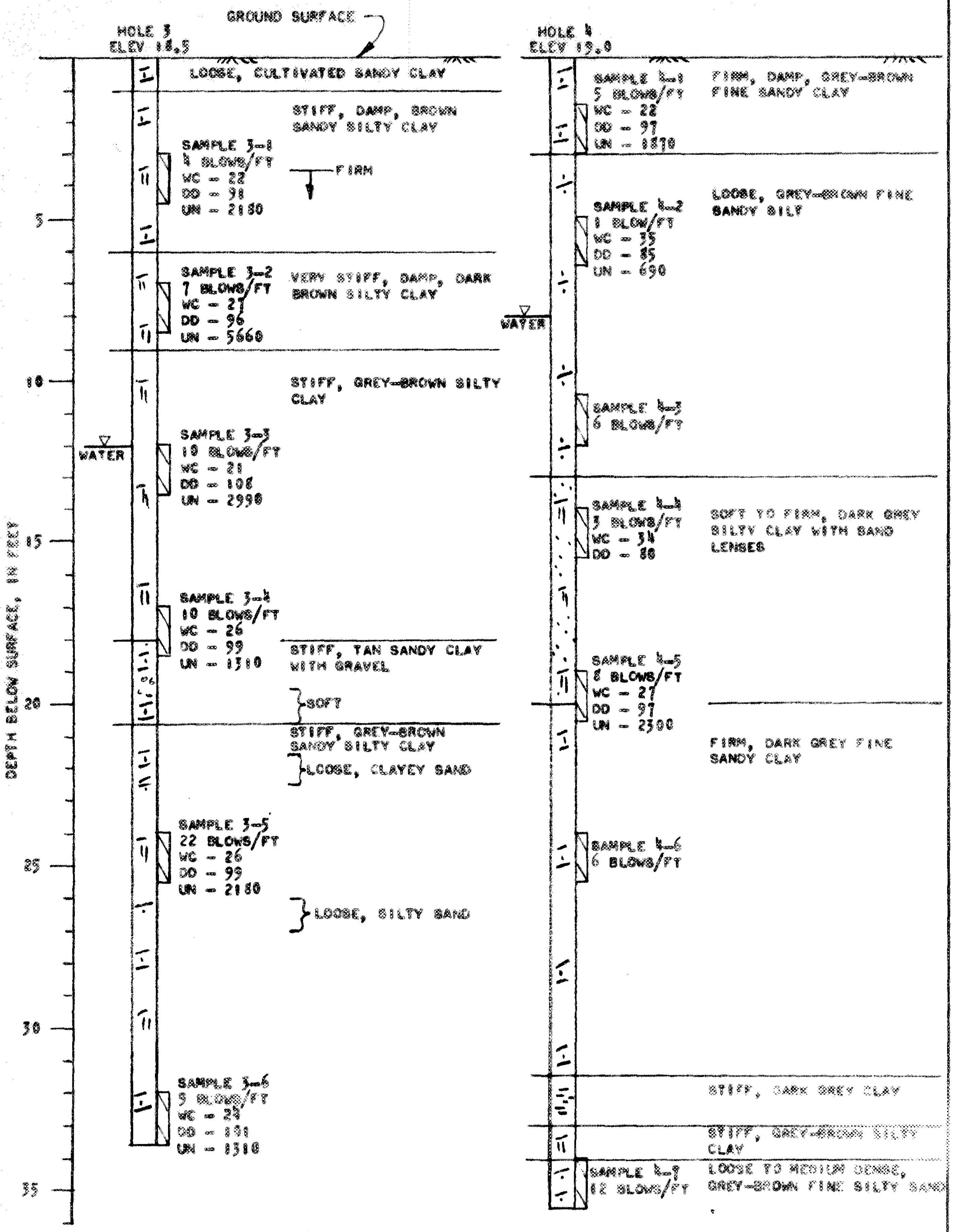


FIG. 6 - LOGS OF BORINGS

FIG.

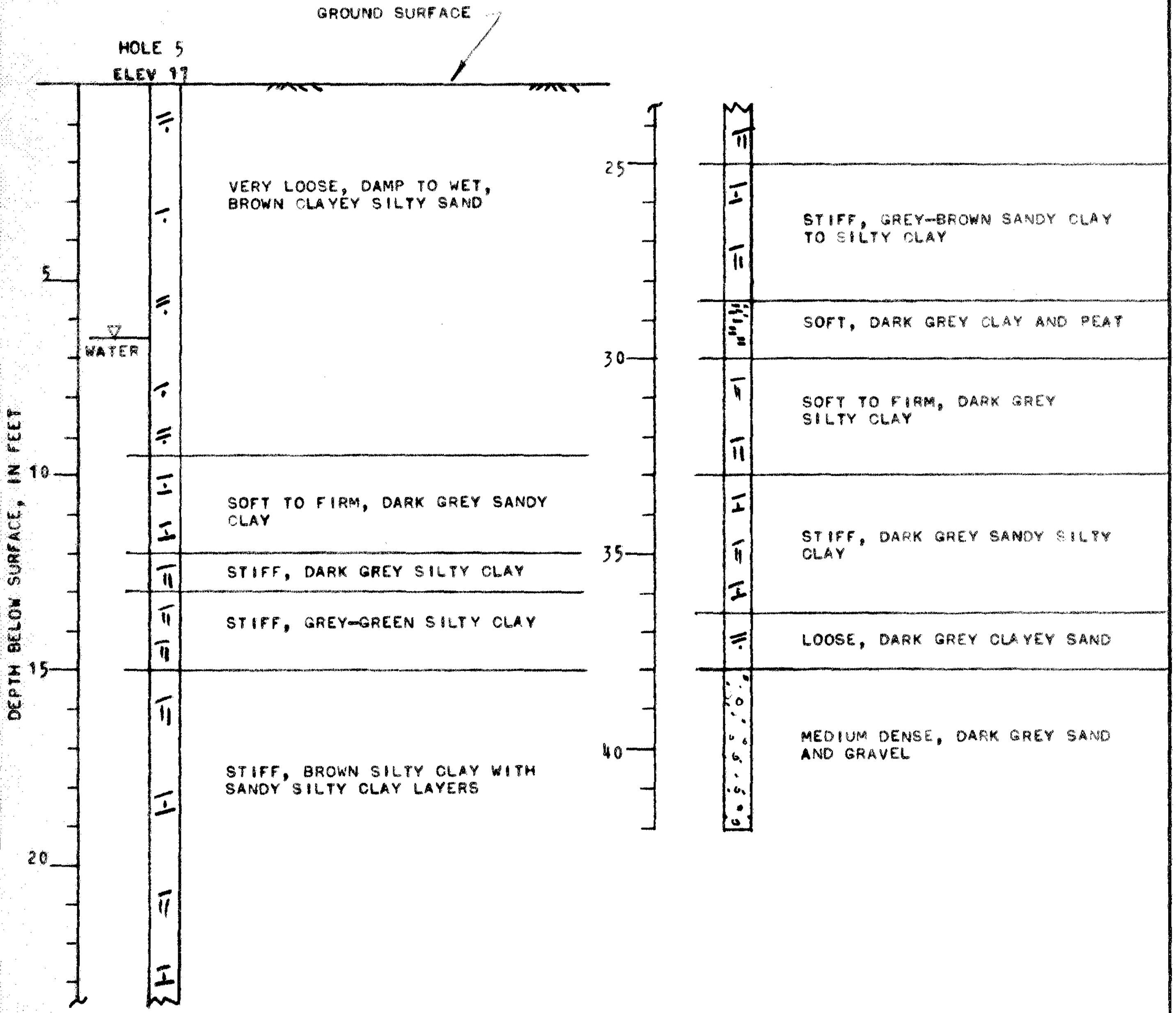

GROUND SURFACE
HOLE 5
ELEV 17
WATER
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
35
40
VERY LOOSE, DAMP TO WET, BROWN CLAYEY SILTY SAND
SOFT TO FIRM, DARK GREY SANDY CLAY
STIFF, DARK GREY SILTY CLAY
STIFF, GREY-GREEN SILTY CLAY
STIFF, BROWN SILTY CLAY WITH SANDY SILTY CLAY LAYERS
STIFF, GREY-BROWN SANDY CLAY TO SILTY CLAY
SOFT, DARK GREY CLAY AND PEAT
SOFT TO FIRM, DARK GREY SILTY CLAY
STIFF, DARK GREY SANDY SILTY CLAY
LOOSE, DARK GREY CLAYEY SAND
MEDIUM DENSE, DARK GREY SAND AND GRAVEL

FIG. 7 - LOGS OF BORINGS

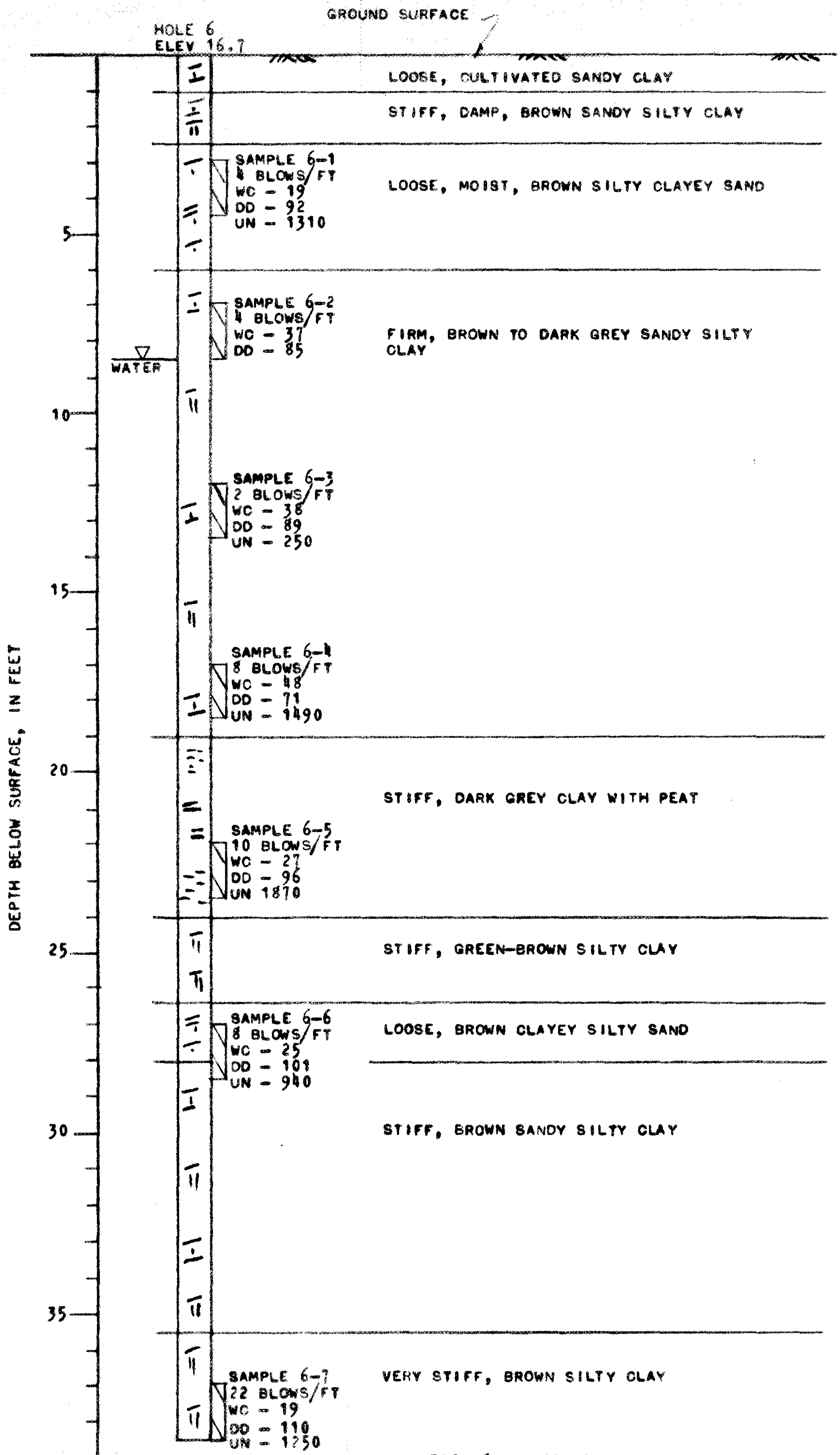


FIG. 8 - LOGS OF BORINGS

FIG. 8

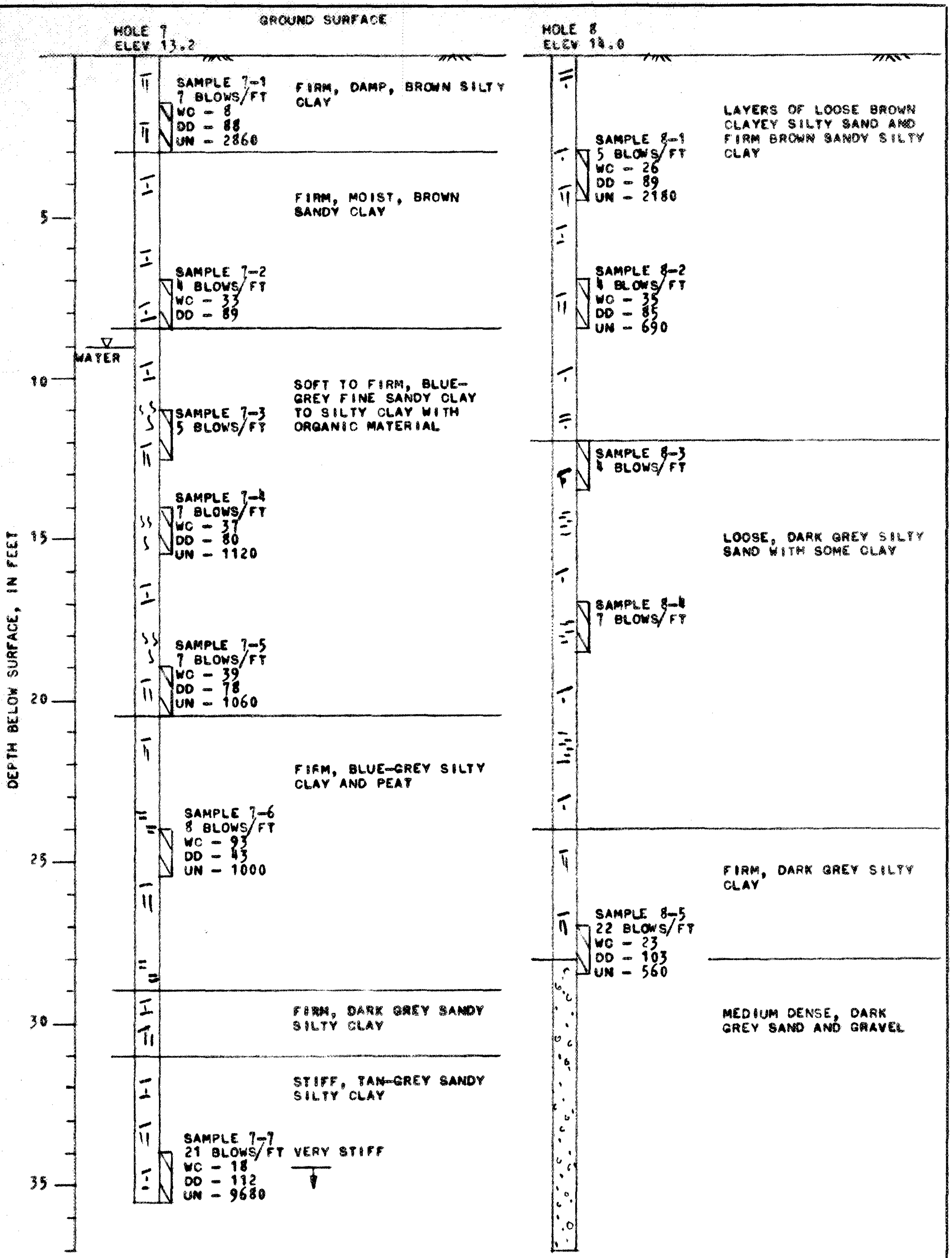


FIG. 9 - LOGS OF BORINGS

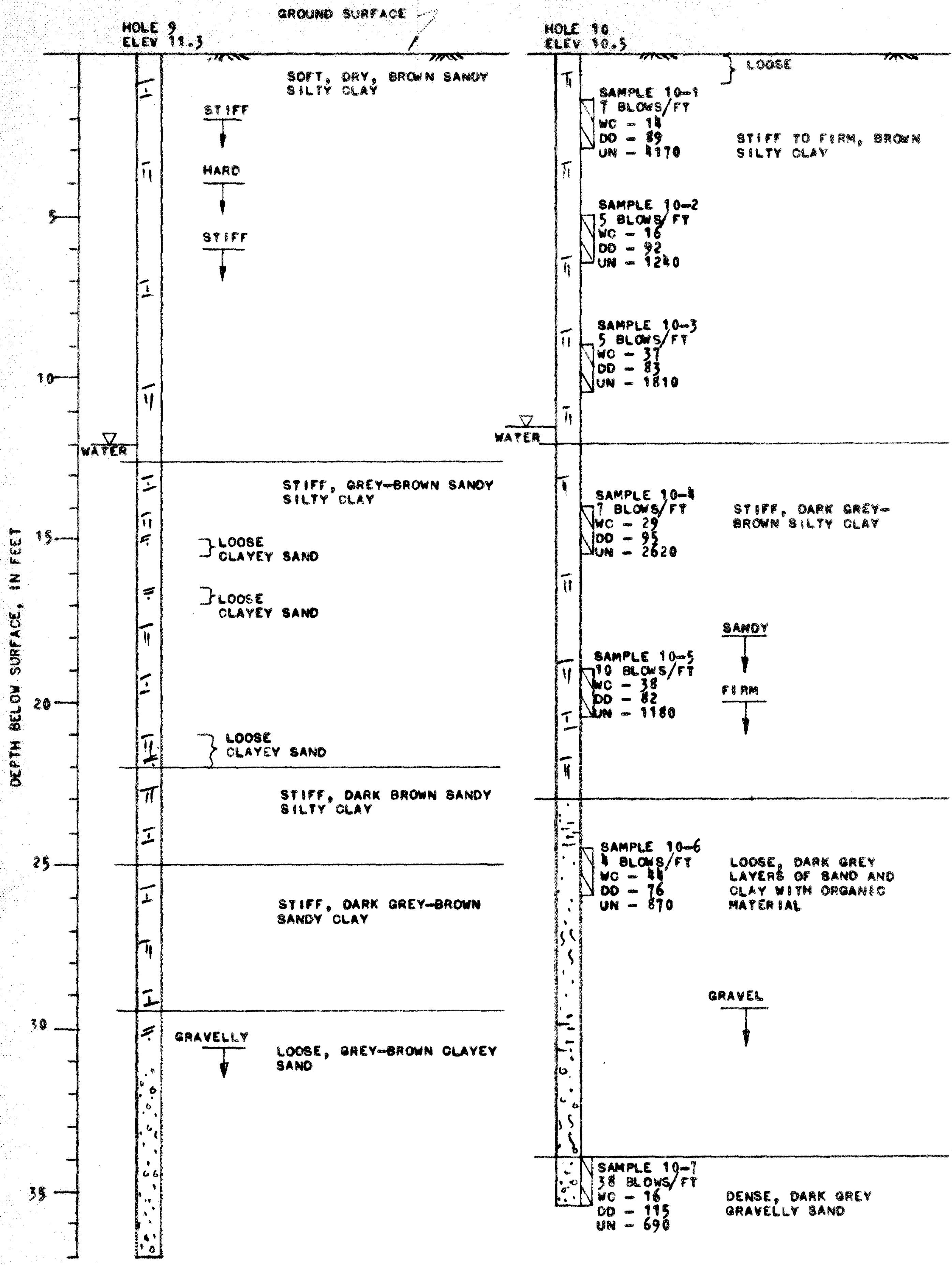


FIG. 10 — LOGS OF BORINGS

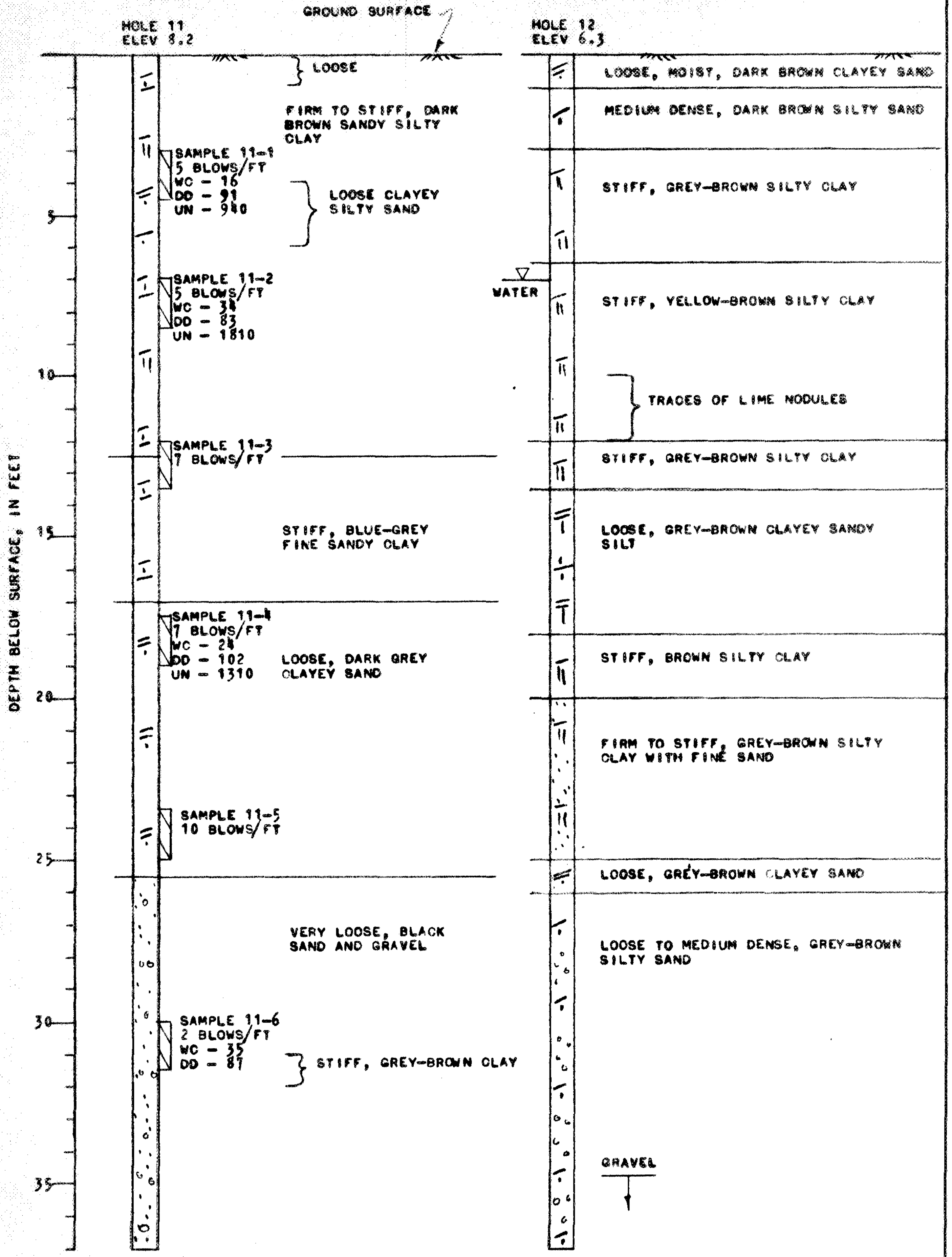

GROUND SURFACE
HOLE 11
ELEV 8.2
LOOSE
FIRM TO STIFF, DARK BROWN SANDY SILTY CLAY
SAMPLE 11-1
5 BLOWS/FT
WC - 16
DD - 91
UN - 940
LOOSE CLAYEY SILTY SAND
SAMPLE 11-2
5 BLOWS/FT
WC - 34
DD - 83
UN - 1810
SAMPLE 11-3
7 BLOWS/FT
STIFF, BLUE-GREY FINE SANDY CLAY
SAMPLE 11-4
7 BLOWS/FT
WC - 24
DD - 102
UN - 1310
LOOSE, DARK GREY CLAYEY SAND
SAMPLE 11-5
10 BLOWS/FT
VERY LOOSE, BLACK SAND AND GRAVEL
SAMPLE 11-6
2 BLOWS/FT
WC - 35
DD - 87
STIFF, GREY-BROWN CLAY
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
35
HOLE 12
ELEV 6.3
LOOSE, MOIST, DARK BROWN CLAYEY SAND
MEDIUM DENSE, DARK BROWN SILTY SAND
STIFF, GREY-BROWN SILTY CLAY
WATER
STIFF, YELLOW-BROWN SILTY CLAY
TRACES OF LIME NODULES
STIFF, GREY-BROWN SILTY CLAY
LOOSE, GREY-BROWN CLAYEY SANDY SILT
STIFF, BROWN SILTY CLAY
FIRM TO STIFF, GREY-BROWN SILTY CLAY WITH FINE SAND
LOOSE, GREY-BROWN CLAYEY SAND
LOOSE TO MEDIUM DENSE, GREY-BROWN SILTY SAND
GRAVEL

FIG. 11 - LOGS OF BORINGS

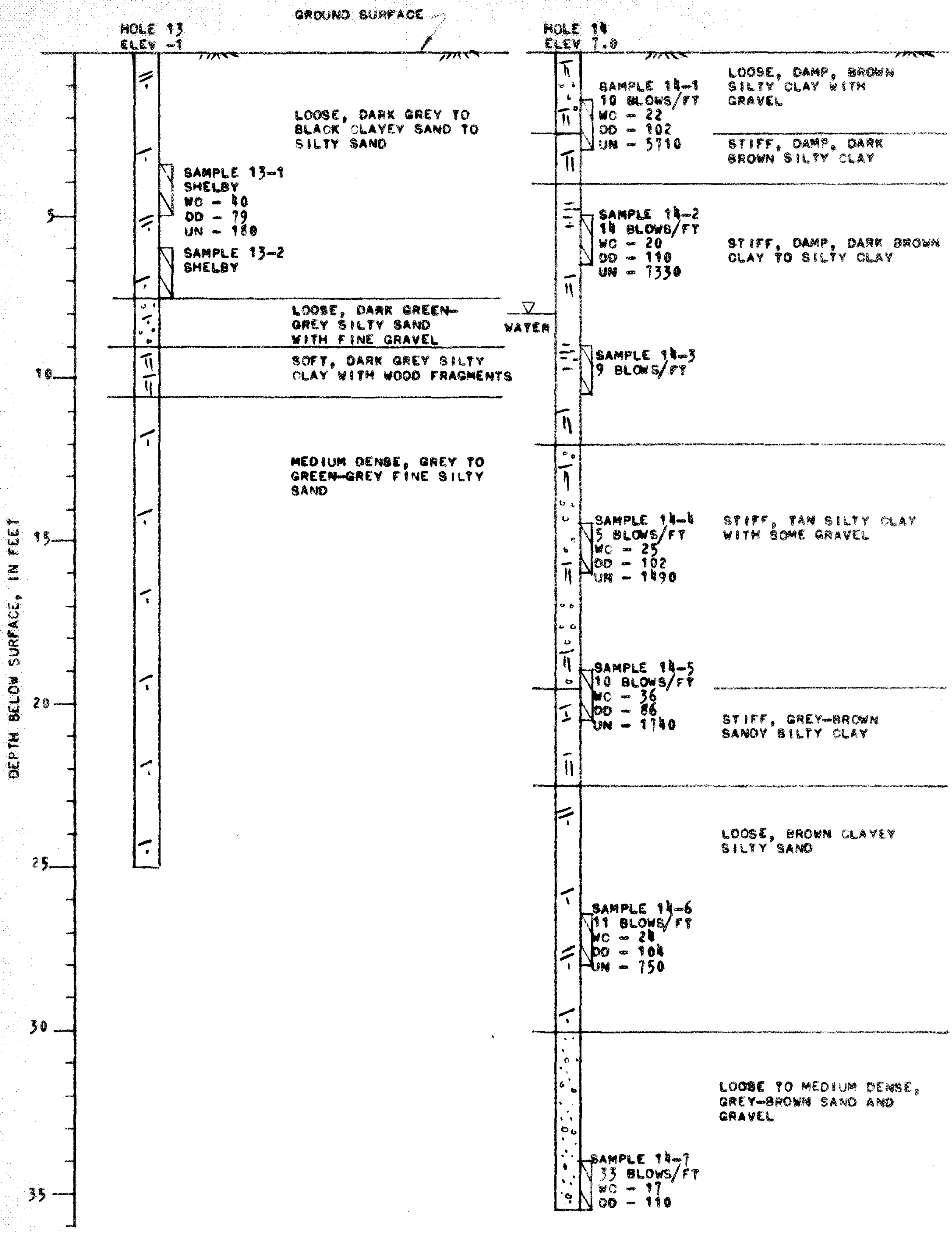

GROUND SURFACE
HOLE 13
ELEV -1
HOLE 14
ELEV 7.0
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
35
LOOSE, DARK GREY TO BLACK CLAYEY SAND TO SILTY SAND
SAMPLE 13-1
SHELBY
WC - 40
DD - 79
UN - 180
SAMPLE 13-2
SHELBY
LOOSE, DARK GREEN-GREY SILTY SAND WITH FINE GRAVEL
SOFT, DARK GREY SILTY CLAY WITH WOOD FRAGMENTS
MEDIUM DENSE, GREY TO GREEN-GREY FINE SILTY SAND
WATER
SAMPLE 14-1
10 BLOWS/FT
WC - 22
DD - 102
UN - 5710
LOOSE, DAMP, BROWN SILTY CLAY WITH GRAVEL
STIFF, DAMP, DARK BROWN SILTY CLAY
SAMPLE 14-2
14 BLOWS/FT
WC - 20
DD - 110
UN - 7330
STIFF, DAMP, DARK BROWN CLAY TO SILTY CLAY
SAMPLE 14-3
9 BLOWS/FT
SAMPLE 14-4
5 BLOWS/FT
WC - 25
DD - 102
UN - 1490
STIFF, TAN SILTY CLAY WITH SOME GRAVEL
SAMPLE 14-5
10 BLOWS/FT
WC - 36
DD - 86
UN - 1740
STIFF, GREY-BROWN SANDY SILTY CLAY
LOOSE, BROWN CLAYEY SILTY SAND
SAMPLE 14-6
11 BLOWS/FT
WC - 24
DD - 104
UN - 750
LOOSE TO MEDIUM DENSE, GREY-BROWN SAND AND GRAVEL
SAMPLE 14-7
33 BLOWS/FT
WC - 17
DD - 110

FIG. 12 - LOGS OF BORINGS

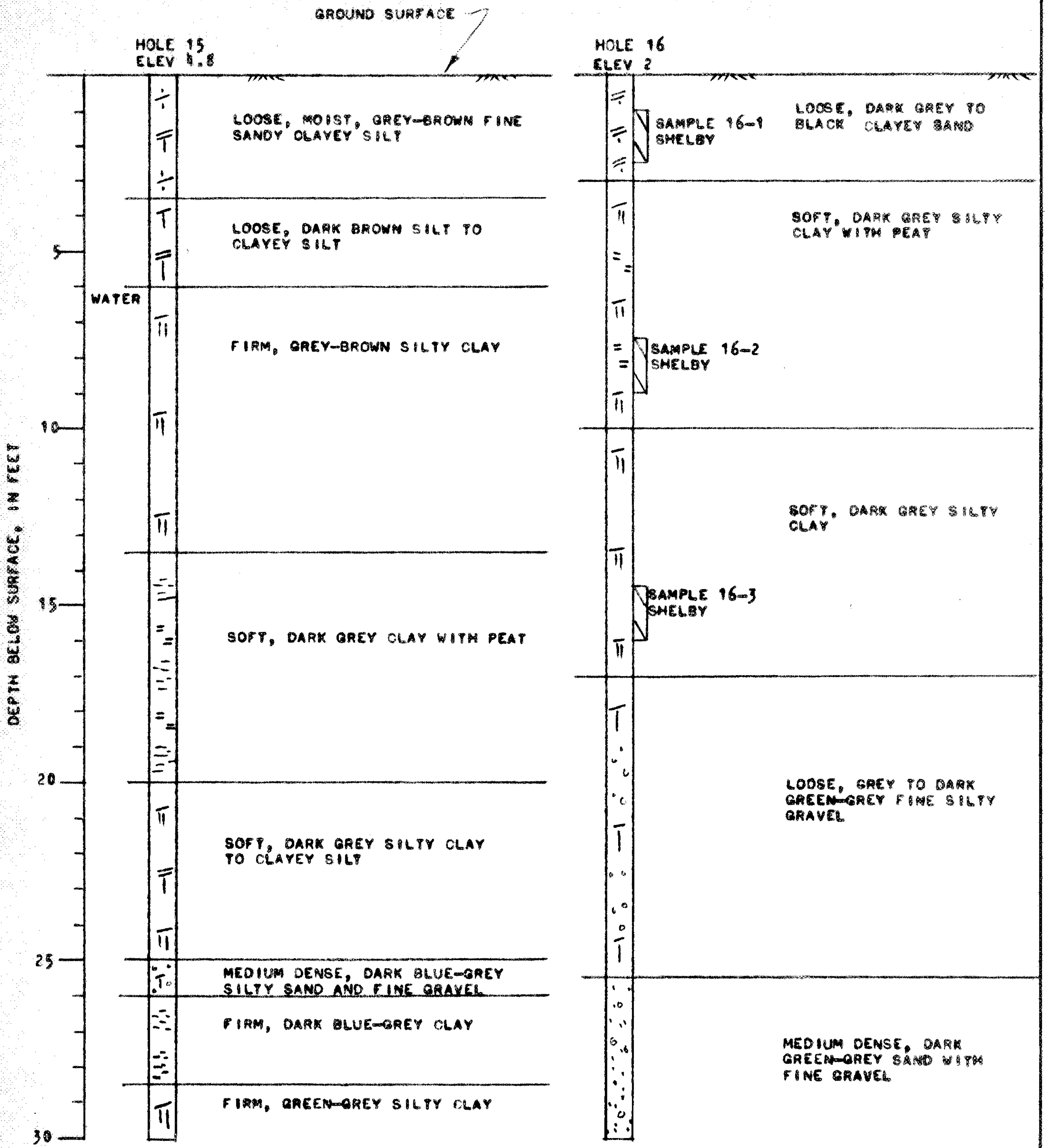

GROUND SURFACE
HOLE 15
ELEV 4.8
HOLE 16
ELEV 2
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
WATER
LOOSE, MOIST, GREY-BROWN FINE SANDY CLAYEY SILT
LOOSE, DARK BROWN SILT TO CLAYEY SILT
FIRM, GREY-BROWN SILTY CLAY
SOFT, DARK GREY CLAY WITH PEAT
SOFT, DARK GREY SILTY CLAY TO CLAYEY SILT
MEDIUM DENSE, DARK BLUE-GREY SILTY SAND AND FINE GRAVEL
FIRM, DARK BLUE-GREY CLAY
FIRM, GREEN-GREY SILTY CLAY
SAMPLE 16-1 SHELBY
LOOSE, DARK GREY TO BLACK CLAYEY SAND
SOFT, DARK GREY SILTY CLAY WITH PEAT
SAMPLE 16-2 SHELBY
SOFT, DARK GREY SILTY CLAY
SAMPLE 16-3 SHELBY
LOOSE, GREY TO DARK GREEN-GREY FINE SILTY GRAVEL
MEDIUM DENSE, DARK GREEN-GREY SAND WITH FINE GRAVEL

FIG. 13 - LOGS OF BORINGS

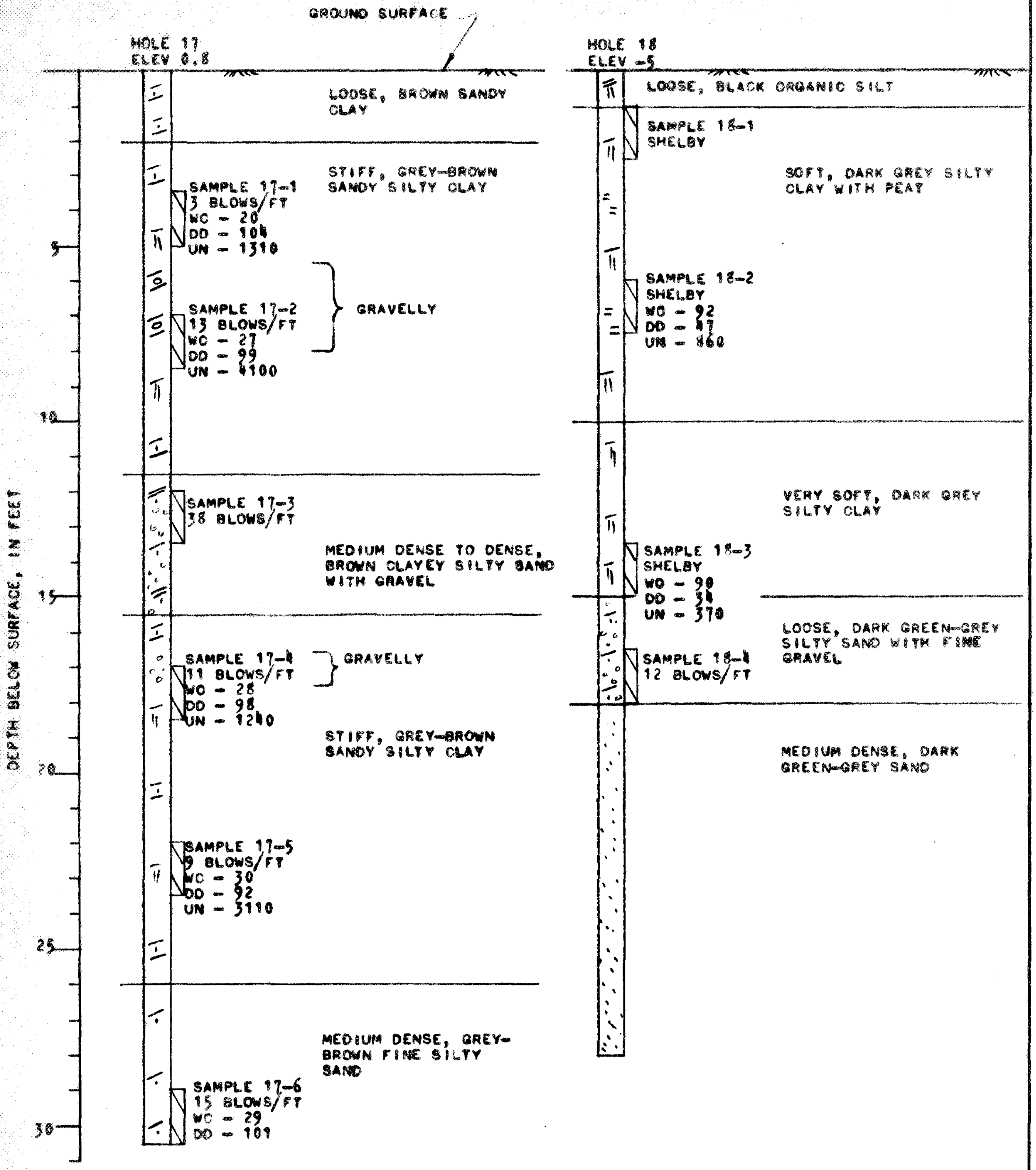


FIG. 14 – LOGS OF BORINGS

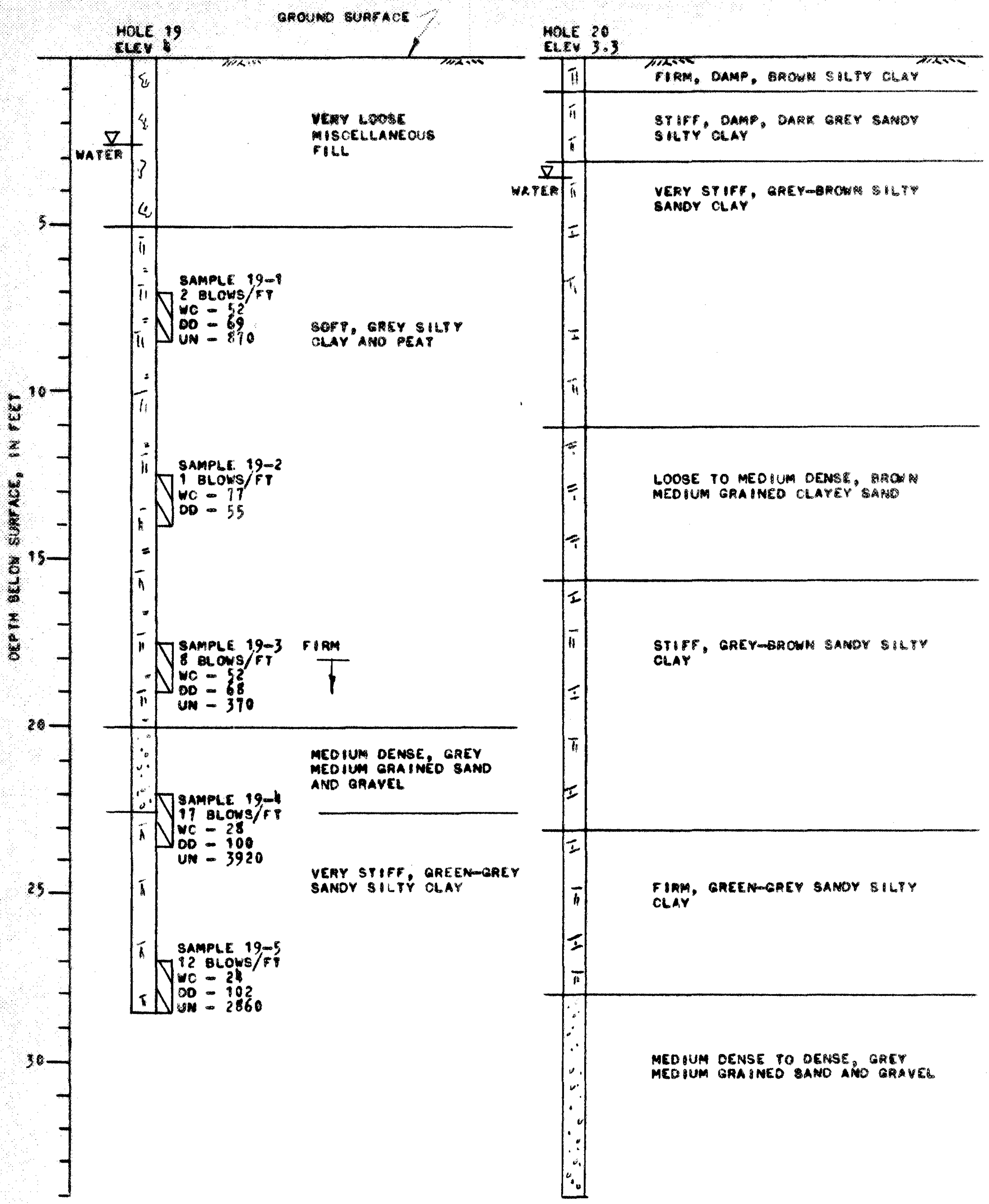

GROUND SURFACE
HOLE 19
ELEV 4
WATER
VERY LOOSE MISCELLANEOUS FILL
SAMPLE 19-1
2 BLOWS/FT
WC - 52
DD - 69
UN - 870
SOFT, GREY SILTY CLAY AND PEAT
SAMPLE 19-2
1 BLOWS/FT
WC - 77
DD - 55
SAMPLE 19-3
8 BLOWS/FT
WC - 52
DD - 68
UN - 370
FIRM
MEDIUM DENSE, GREY MEDIUM GRAINED SAND AND GRAVEL
SAMPLE 19-4
17 BLOWS/FT
WC - 28
DD - 100
UN - 3920
VERY STIFF, GREEN-GREY SANDY SILTY CLAY
SAMPLE 19-5
12 BLOWS/FT
WC - 24
DD - 102
UN - 2860
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
HOLE 20
ELEV 3.3
WATER
FIRM, DAMP, BROWN SILTY CLAY
STIFF, DAMP, DARK GREY SANDY SILTY CLAY
VERY STIFF, GREY-BROWN SILTY SANDY CLAY
LOOSE TO MEDIUM DENSE, BROWN MEDIUM GRAINED CLAYEY SAND
STIFF, GREY-BROWN SANDY SILTY CLAY
FIRM, GREEN-GREY SANDY SILTY CLAY
MEDIUM DENSE TO DENSE, GREY MEDIUM GRAINED SAND AND GRAVEL

FIG. 15 - LOGS OF BORINGS

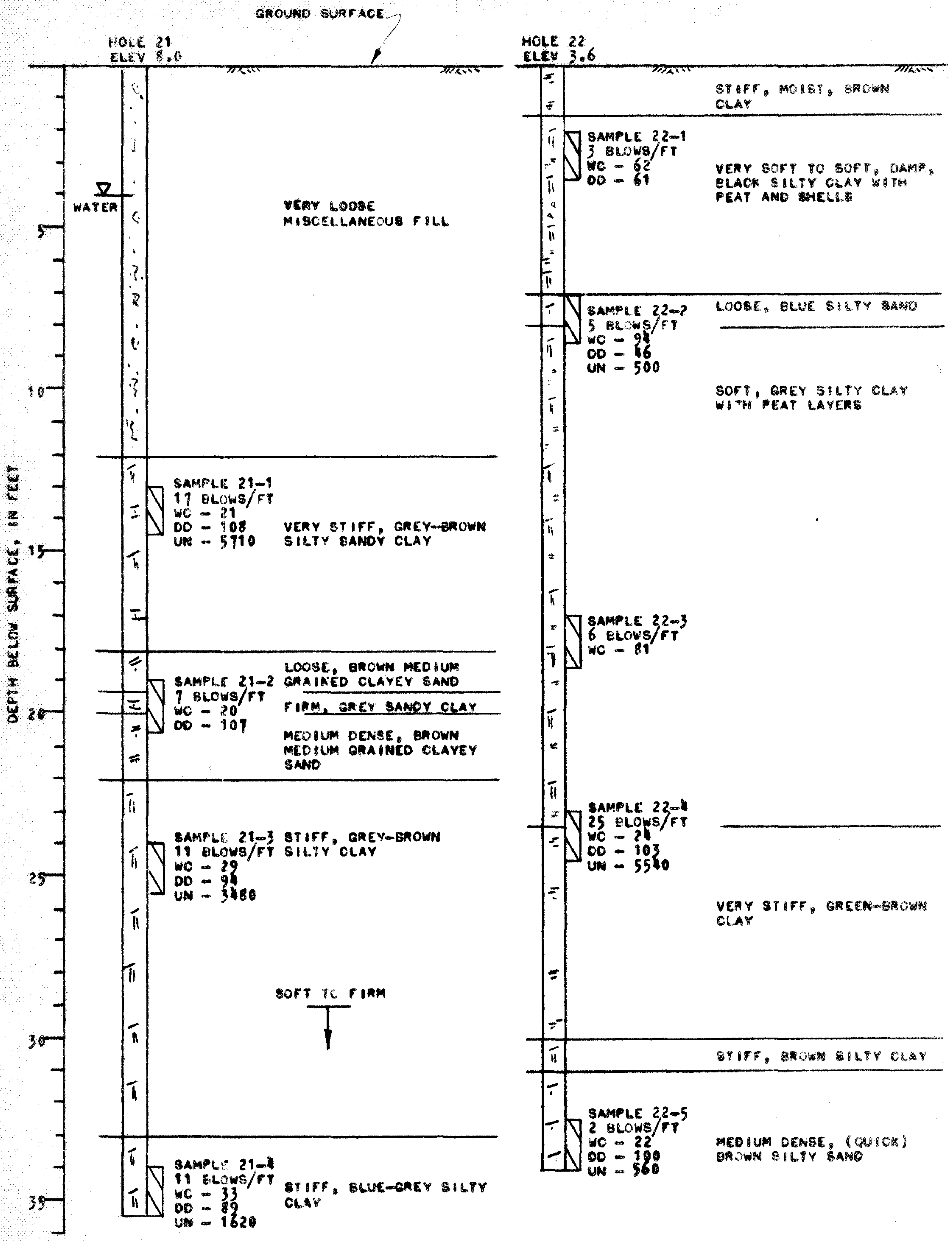


FIG. 16 – LOGS OF BORINGS

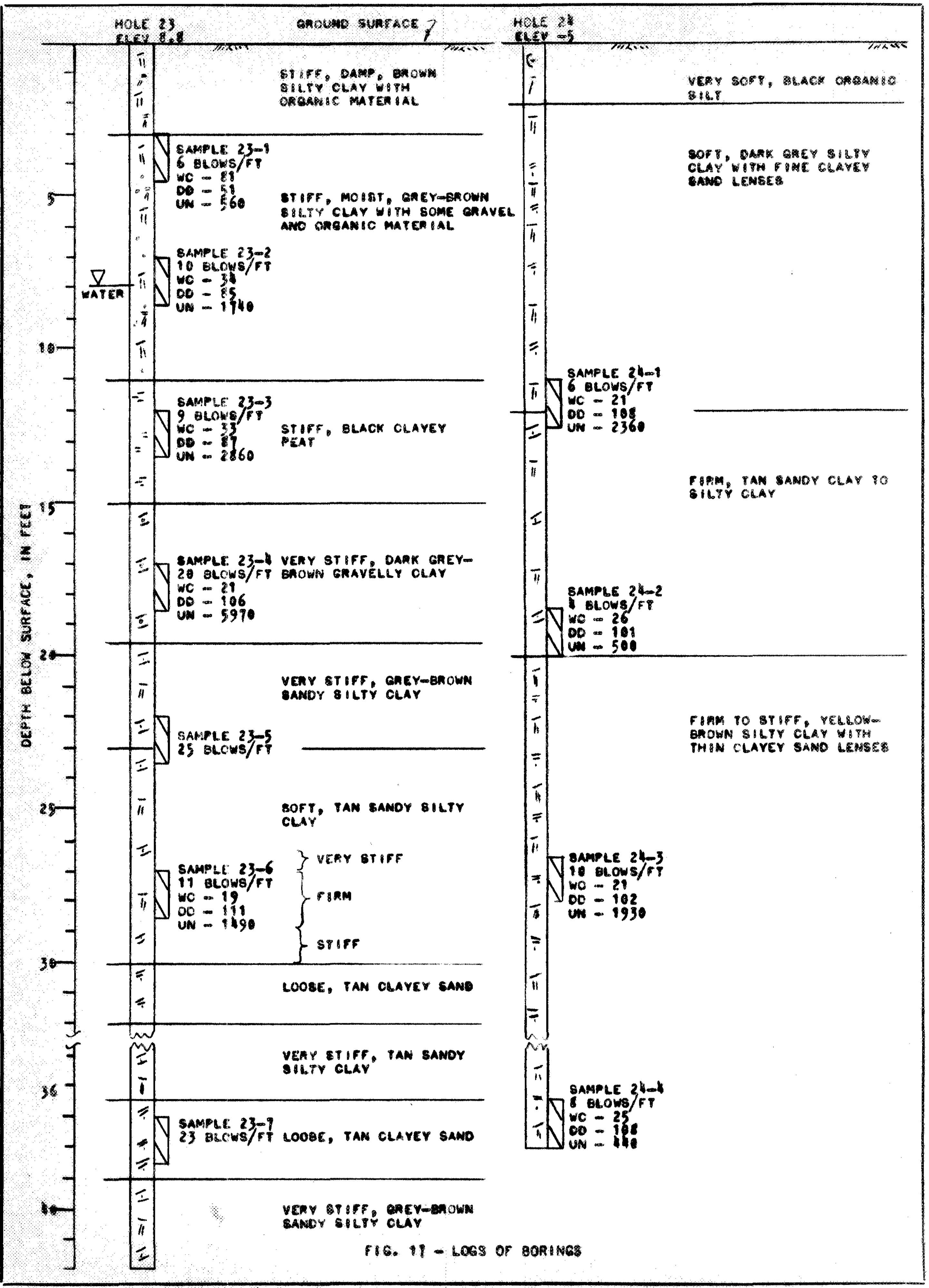


FIG. 17 - LOGS OF BORINGS

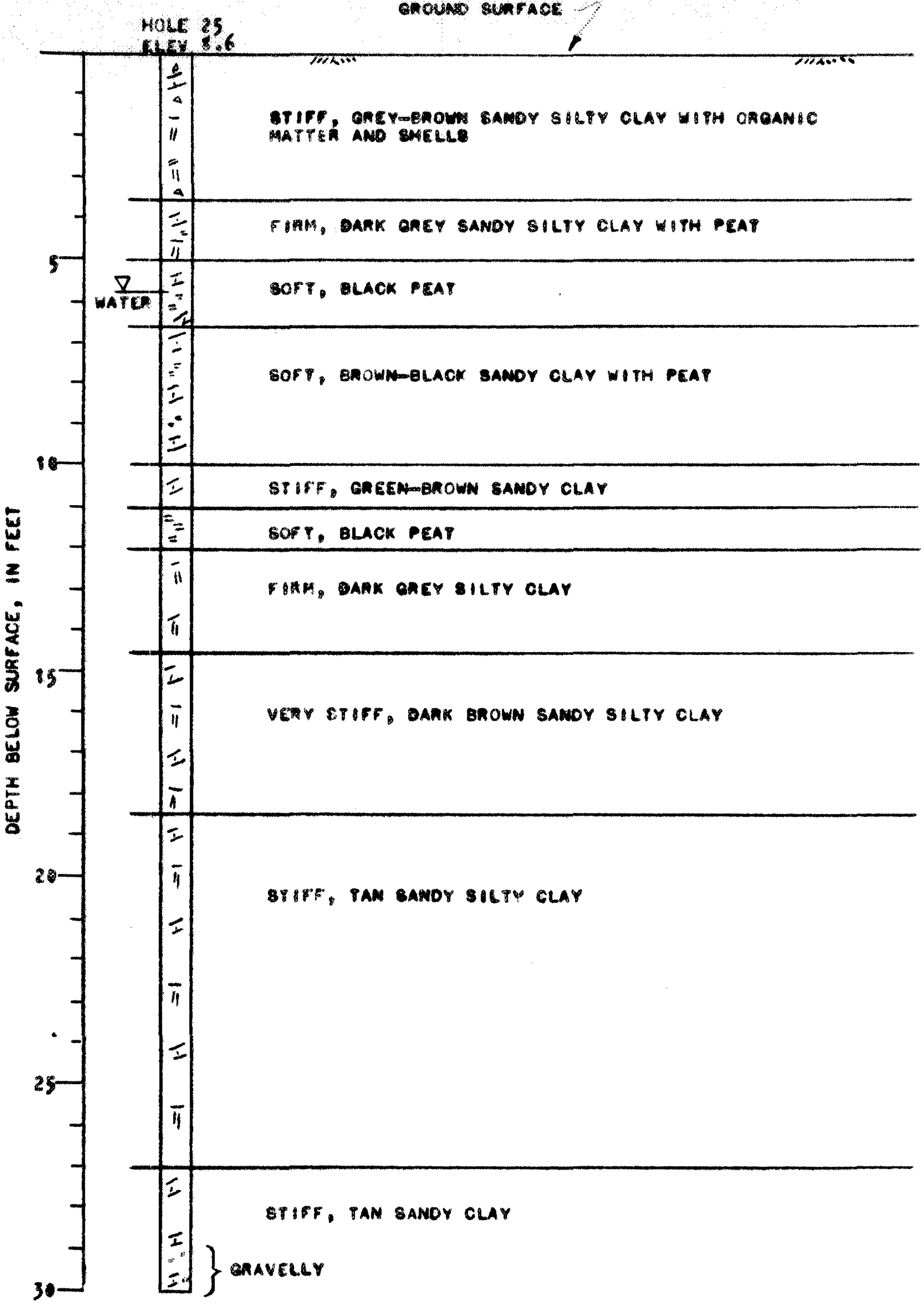

GROUND SURFACE
HOLE 25
ELEV 8.6
STIFF, GREY-BROWN SANDY SILTY CLAY WITH ORGANIC MATTER AND SHELLS
FIRM, DARK GREY SANDY SILTY CLAY WITH PEAT
SOFT, BLACK PEAT
WATER
SOFT, BROWN-BLACK SANDY CLAY WITH PEAT
STIFF, GREEN-BROWN SANDY CLAY
SOFT, BLACK PEAT
FIRM, DARK GREY SILTY CLAY
VERY STIFF, DARK BROWN SANDY SILTY CLAY
STIFF, TAN SANDY SILTY CLAY
STIFF, TAN SANDY CLAY
GRAVELLY
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30

FIG. 18 – LOGS OF BORINGS

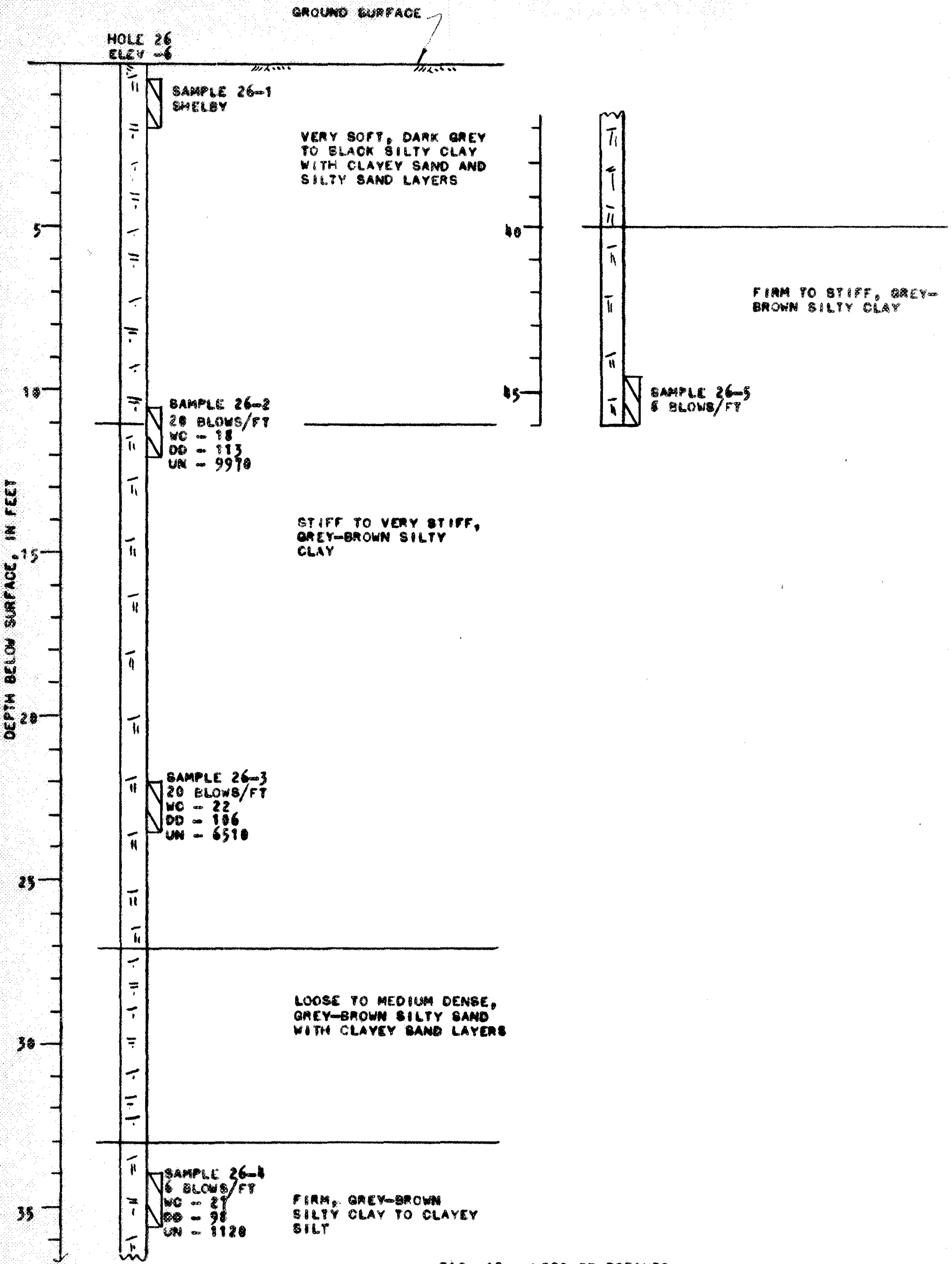


FIG. 19 - LOGS OF BORINGS

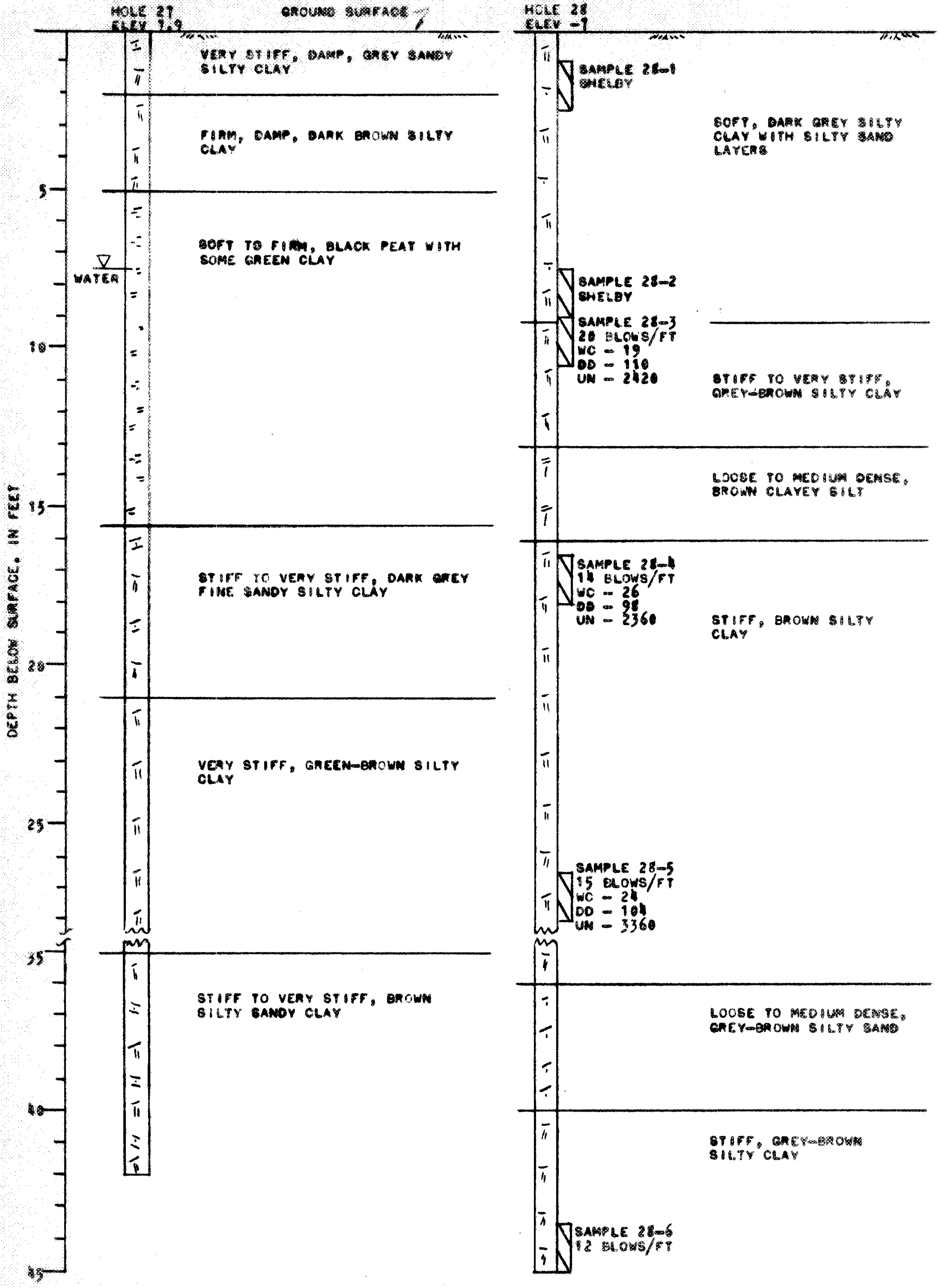

HOLE 27
ELEV 7.9
GROUND SURFACE
HOLE 28
ELEV -1
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
35
40
45
WATER
VERY STIFF, DAMP, GREY SANDY SILTY CLAY
FIRM, DAMP, DARK BROWN SILTY CLAY
SOFT TO FIRM, BLACK PEAT WITH SOME GREEN CLAY
STIFF TO VERY STIFF, DARK GREY FINE SANDY SILTY CLAY
VERY STIFF, GREEN-BROWN SILTY CLAY
STIFF TO VERY STIFF, BROWN SILTY SANDY CLAY
SAMPLE 28-1
SHELBY
SOFT, DARK GREY SILTY CLAY WITH SILTY SAND LAYERS
SAMPLE 28-2
SHELBY
SAMPLE 28-3
20 BLOWS/FT
WC - 19
DD - 110
UN - 2420
STIFF TO VERY STIFF, GREY-BROWN SILTY CLAY
LOOSE TO MEDIUM DENSE, BROWN CLAYEY SILT
SAMPLE 28-4
14 BLOWS/FT
WC - 26
DD - 98
UN - 2360
STIFF, BROWN SILTY CLAY
SAMPLE 28-5
15 BLOWS/FT
WC - 24
DD - 104
UN - 3360
LOOSE TO MEDIUM DENSE, GREY-BROWN SILTY SAND
STIFF, GREY-BROWN SILTY CLAY
SAMPLE 28-6
12 BLOWS/FT

FIG. 20 - LOGS OF BORINGS

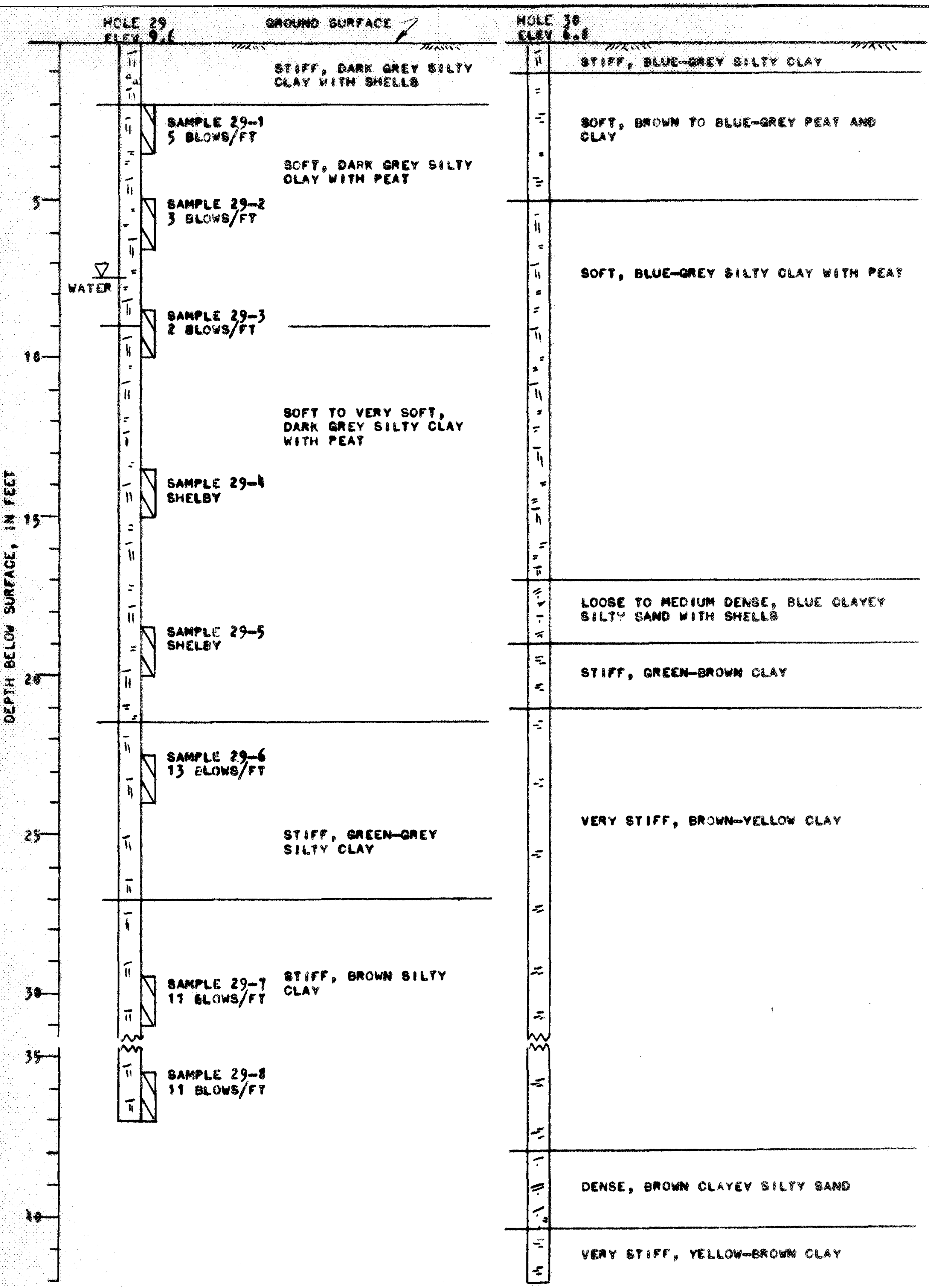

HOLE 29
ELEV 9.6
GROUND SURFACE
HOLE 30
ELEV 6.8
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
35
40
WATER
STIFF, DARK GREY SILTY CLAY WITH SHELLS
SAMPLE 29-1
5 BLOWS/FT
SOFT, DARK GREY SILTY CLAY WITH PEAT
SAMPLE 29-2
3 BLOWS/FT
SAMPLE 29-3
2 BLOWS/FT
SOFT TO VERY SOFT, DARK GREY SILTY CLAY WITH PEAT
SAMPLE 29-4
SHELBY
SAMPLE 29-5
SHELBY
SAMPLE 29-6
13 BLOWS/FT
STIFF, GREEN-GREY SILTY CLAY
SAMPLE 29-7
11 BLOWS/FT
STIFF, BROWN SILTY CLAY
SAMPLE 29-8
11 BLOWS/FT
STIFF, BLUE-GREY SILTY CLAY
SOFT, BROWN TO BLUE-GREY PEAT AND CLAY
SOFT, BLUE-GREY SILTY CLAY WITH PEAT
LOOSE TO MEDIUM DENSE, BLUE CLAYEY SILTY SAND WITH SHELLS
STIFF, GREEN-BROWN CLAY
VERY STIFF, BROWN-YELLOW CLAY
DENSE, BROWN CLAYEY SILTY SAND
VERY STIFF, YELLOW-BROWN CLAY

FIG. 21 — LOGS OF BORINGS

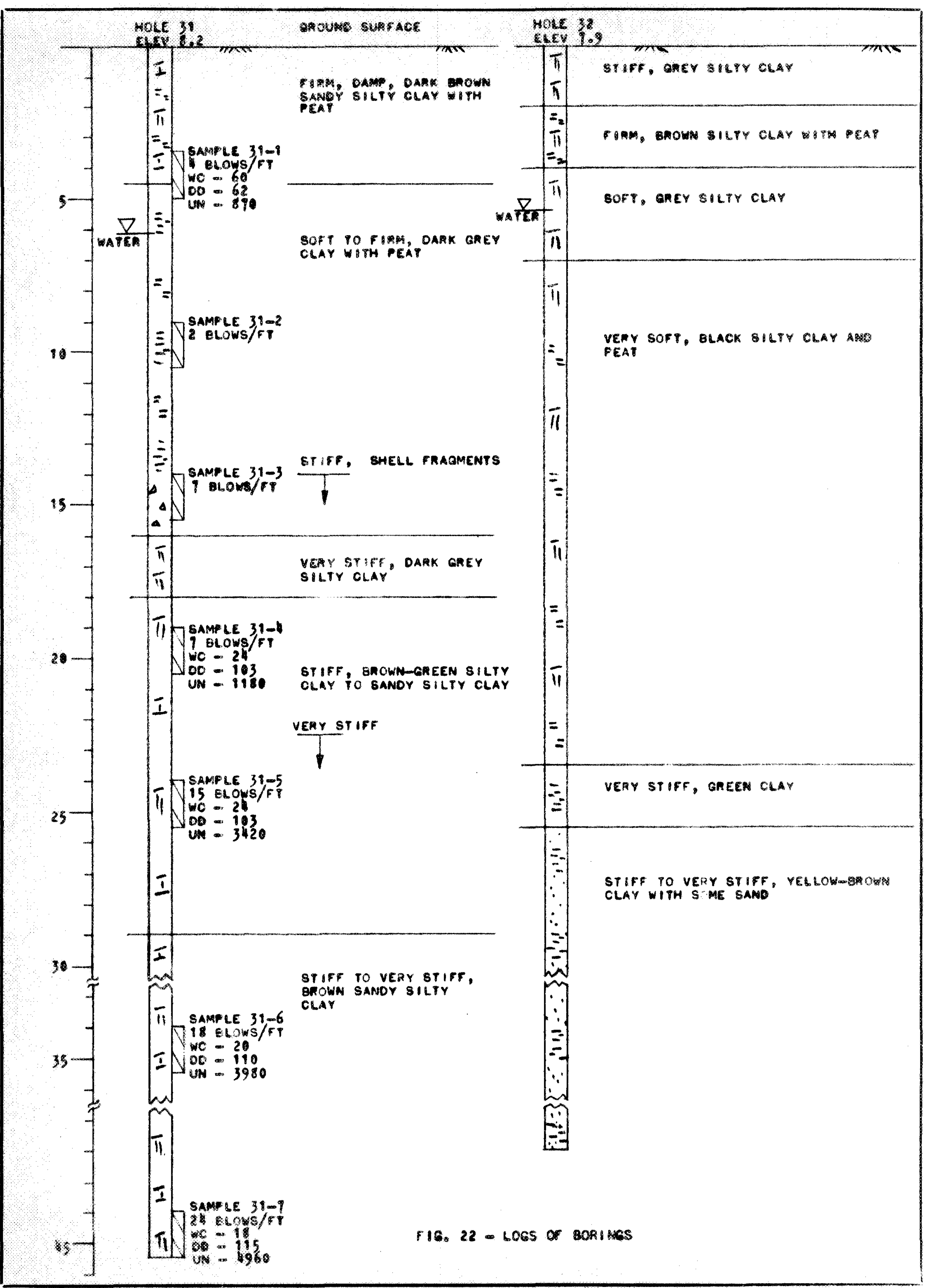


FIG. 22 - LOGS OF BORINGS

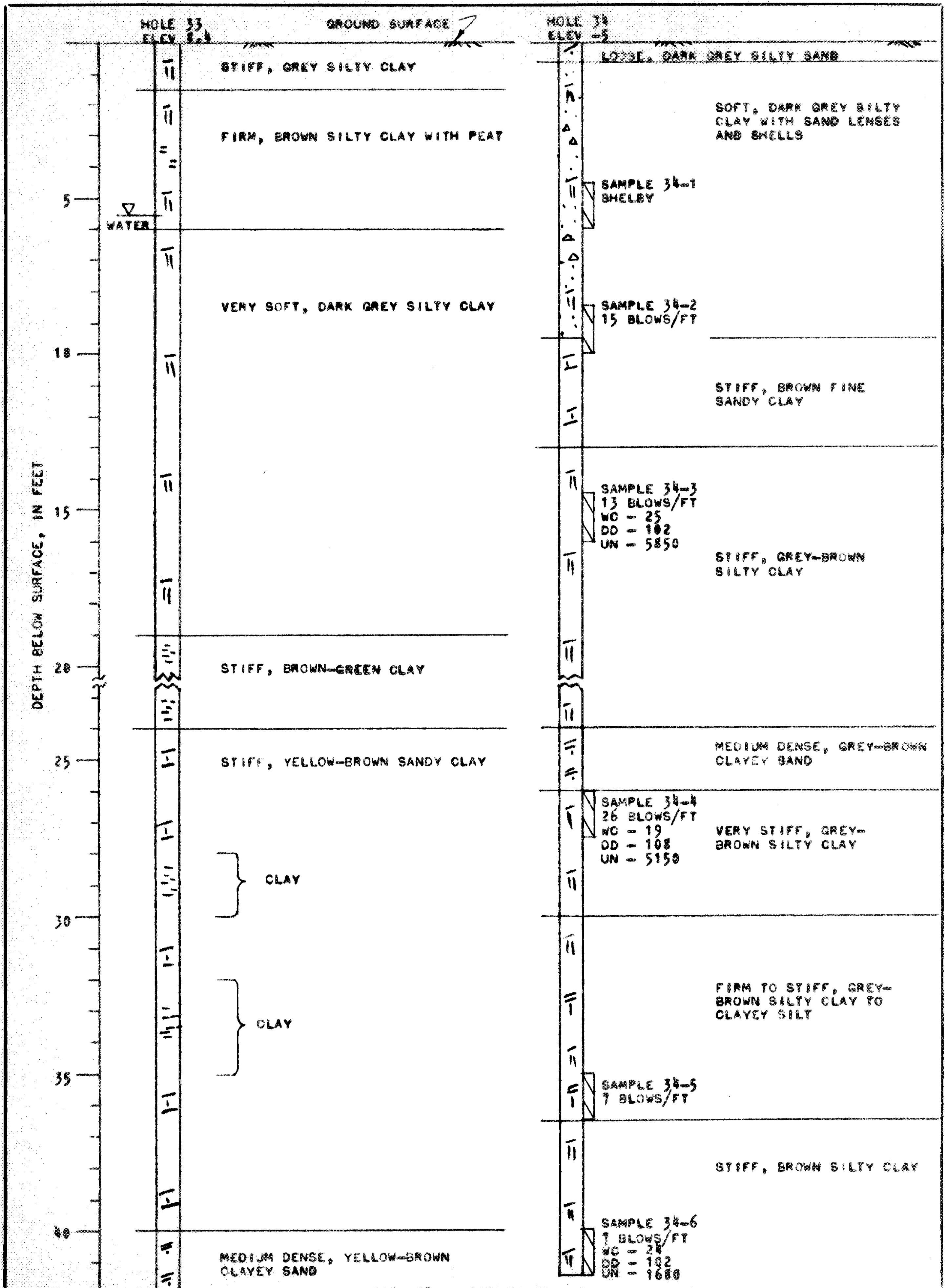

HOLE 33
ELEV 8.4
GROUND SURFACE
HOLE 34
ELEV -5
STIFF, GREY SILTY CLAY
FIRM, BROWN SILTY CLAY WITH PEAT
WATER
VERY SOFT, DARK GREY SILTY CLAY
STIFF, BROWN-GREEN CLAY
STIFF, YELLOW-BROWN SANDY CLAY
CLAY
CLAY
MEDIUM DENSE, YELLOW-BROWN CLAYEY SAND
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
35
40
LOOSE, DARK GREY SILTY SAND
SOFT, DARK GREY SILTY CLAY WITH SAND LENSES AND SHELLS
SAMPLE 34-1
SHELBY
SAMPLE 34-2
15 BLOWS/FT
STIFF, BROWN FINE SANDY CLAY
SAMPLE 34-3
13 BLOWS/FT
WC - 25
DD - 102
UN - 5850
STIFF, GREY-BROWN SILTY CLAY
MEDIUM DENSE, GREY-BROWN CLAYEY SAND
SAMPLE 34-4
26 BLOWS/FT
WC - 19
DD - 108
UN - 5150
VERY STIFF, GREY-BROWN SILTY CLAY
FIRM TO STIFF, GREY-BROWN SILTY CLAY TO CLAYEY SILT
SAMPLE 34-5
7 BLOWS/FT
STIFF, BROWN SILTY CLAY
SAMPLE 34-6
7 BLOWS/FT
WC - 24
DD - 102
UN - 1680

FIG. 23 - LOGS OF BORINGS

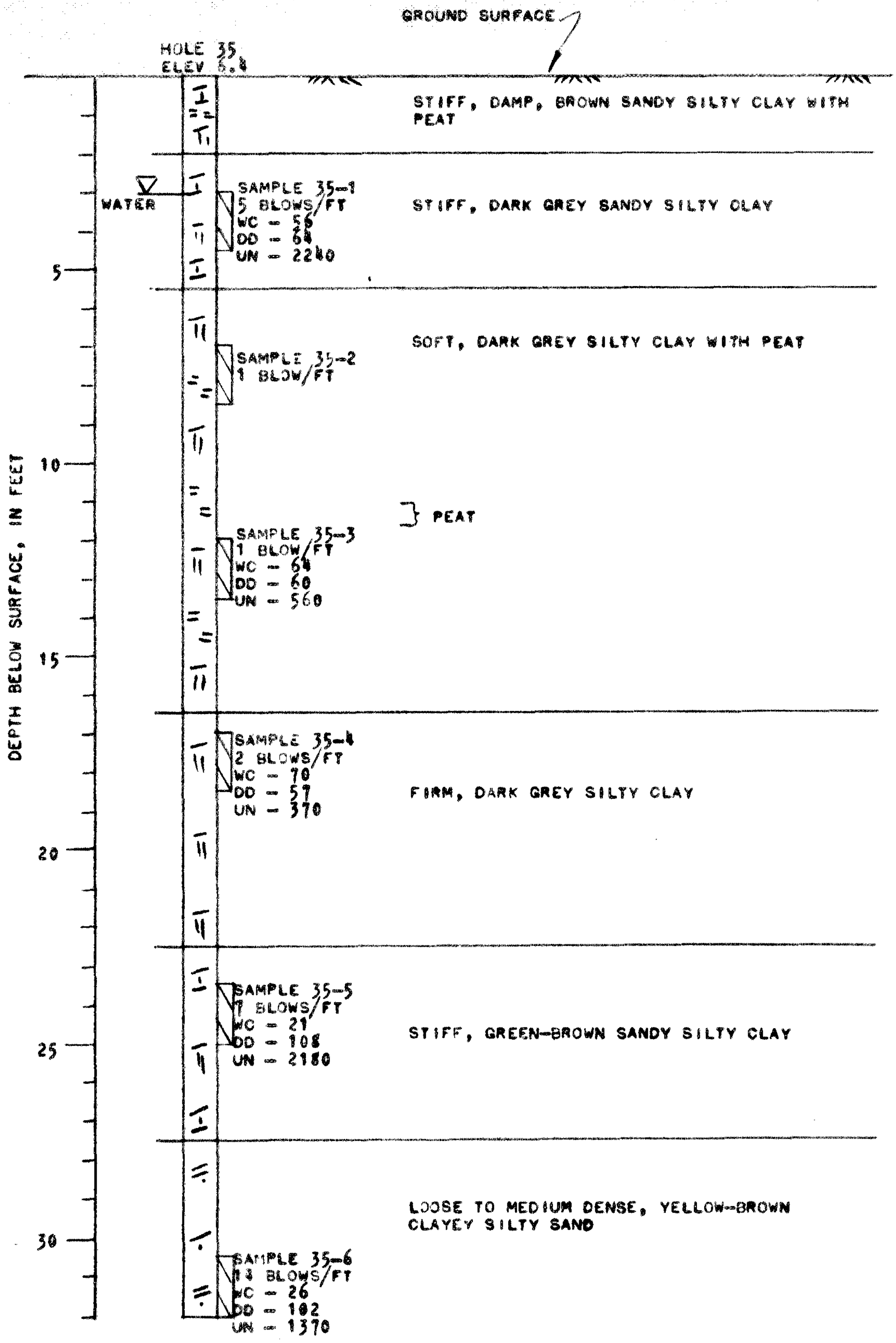


FIG. 24 - LOGS OF BORINGS

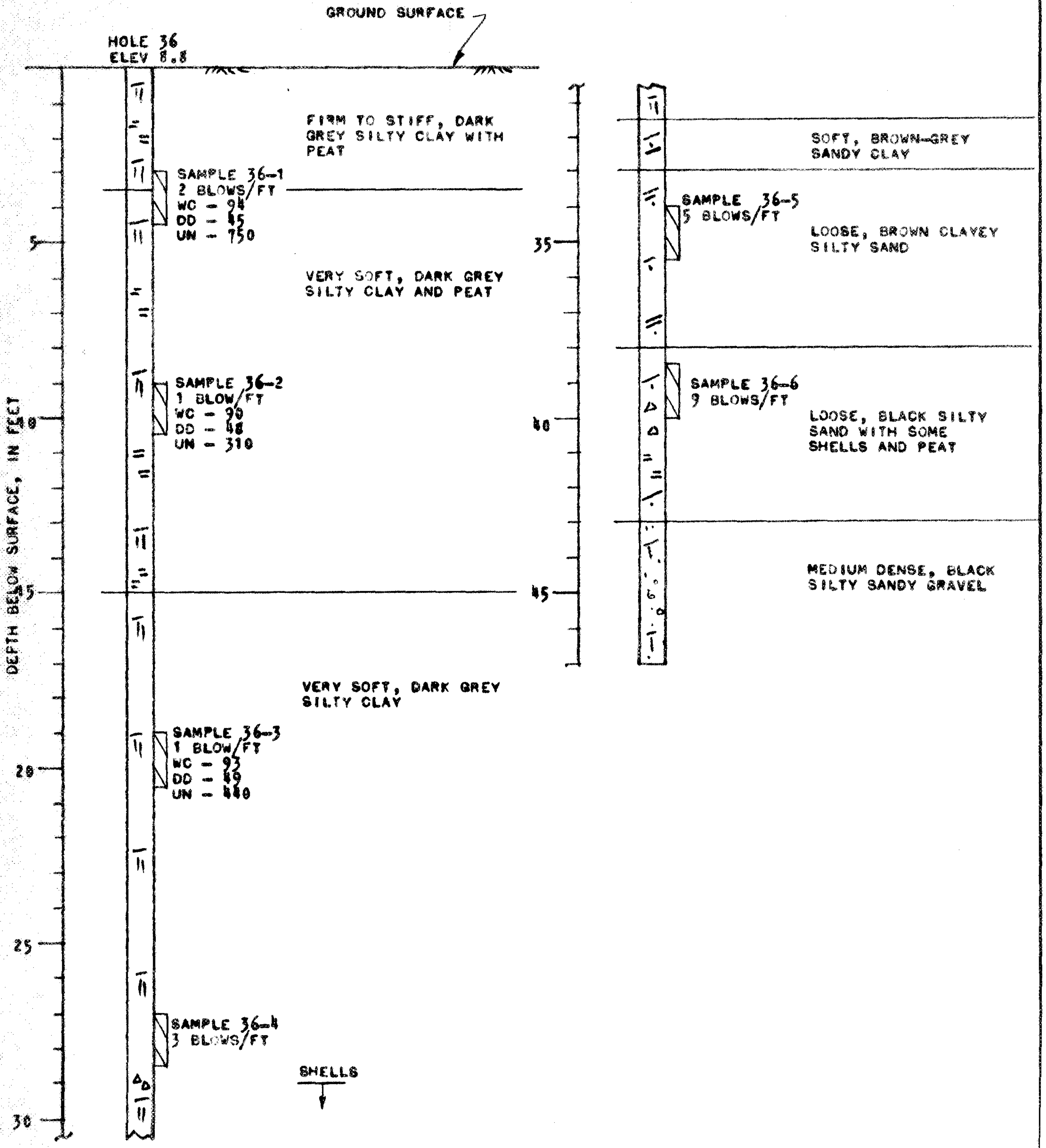

GROUND SURFACE
HOLE 36
ELEV 8.8
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
35
40
45
FIRM TO STIFF, DARK GREY SILTY CLAY WITH PEAT
SAMPLE 36-1
2 BLOWS/FT
WC - 94
DD - 45
UN - 750
VERY SOFT, DARK GREY SILTY CLAY AND PEAT
SAMPLE 36-2
1 BLOW/FT
WC - 90
DD - 48
UN - 310
VERY SOFT, DARK GREY SILTY CLAY
SAMPLE 36-3
1 BLOW/FT
WC - 93
DD - 49
UN - 440
SAMPLE 36-4
3 BLOWS/FT
SHELLS
SOFT, BROWN-GREY SANDY CLAY
SAMPLE 36-5
5 BLOWS/FT
LOOSE, BROWN CLAYEY SILTY SAND
SAMPLE 36-6
9 BLOWS/FT
LOOSE, BLACK SILTY SAND WITH SOME SHELLS AND PEAT
MEDIUM DENSE, BLACK SILTY SANDY GRAVEL

FIG. 25 - LOGS OF BORINGS

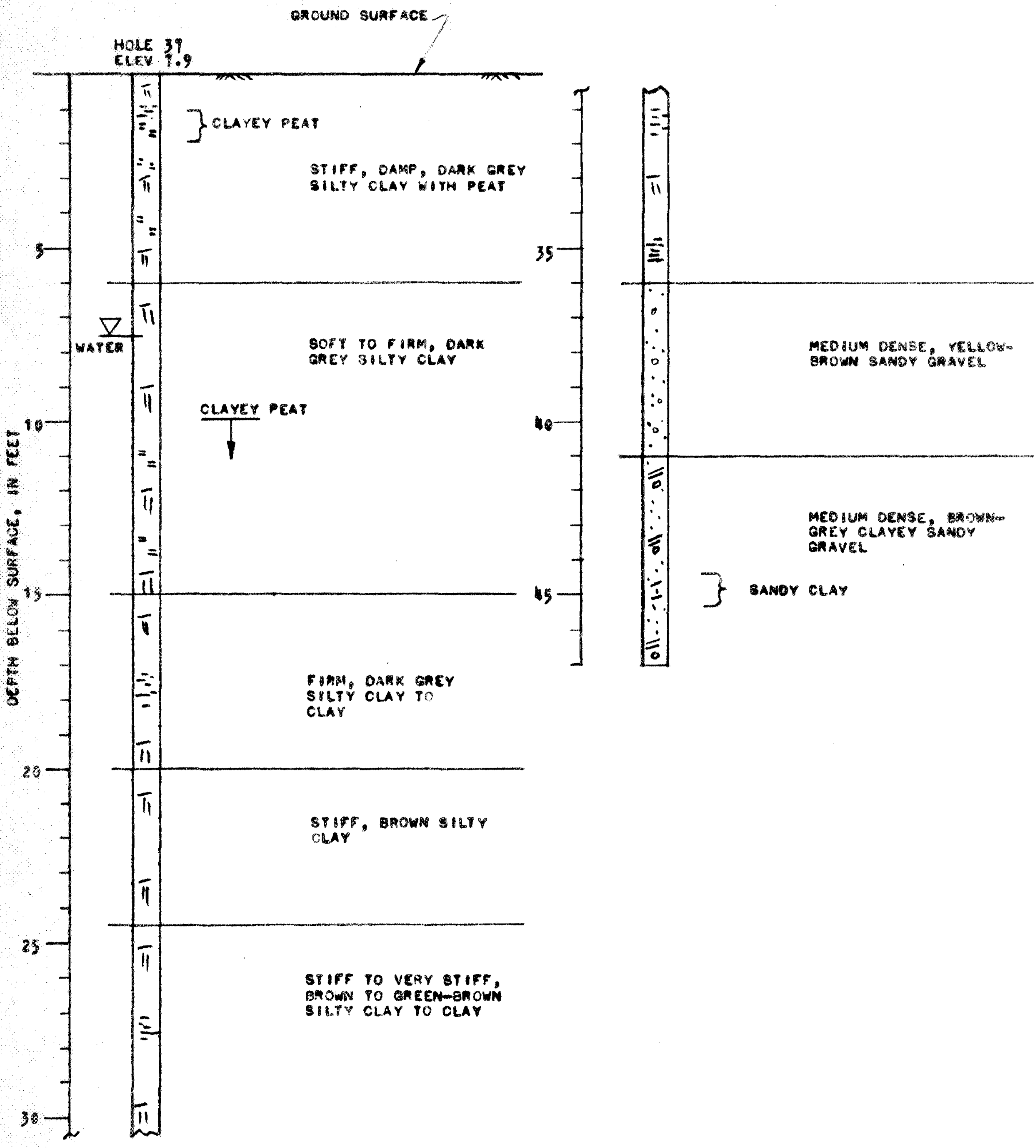

GROUND SURFACE
HOLE 37
ELEV 7.9
CLAYEY PEAT
STIFF, DAMP, DARK GREY SILTY CLAY WITH PEAT
WATER
SOFT TO FIRM, DARK GREY SILTY CLAY
CLAYEY PEAT
FIRM, DARK GREY SILTY CLAY TO CLAY
STIFF, BROWN SILTY CLAY
STIFF TO VERY STIFF, BROWN TO GREEN-BROWN SILTY CLAY TO CLAY
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
35
40
45
MEDIUM DENSE, YELLOW-BROWN SANDY GRAVEL
MEDIUM DENSE, BROWN-GREY CLAYEY SANDY GRAVEL
SANDY CLAY

FIG. 26 – LOGS OF BORINGS

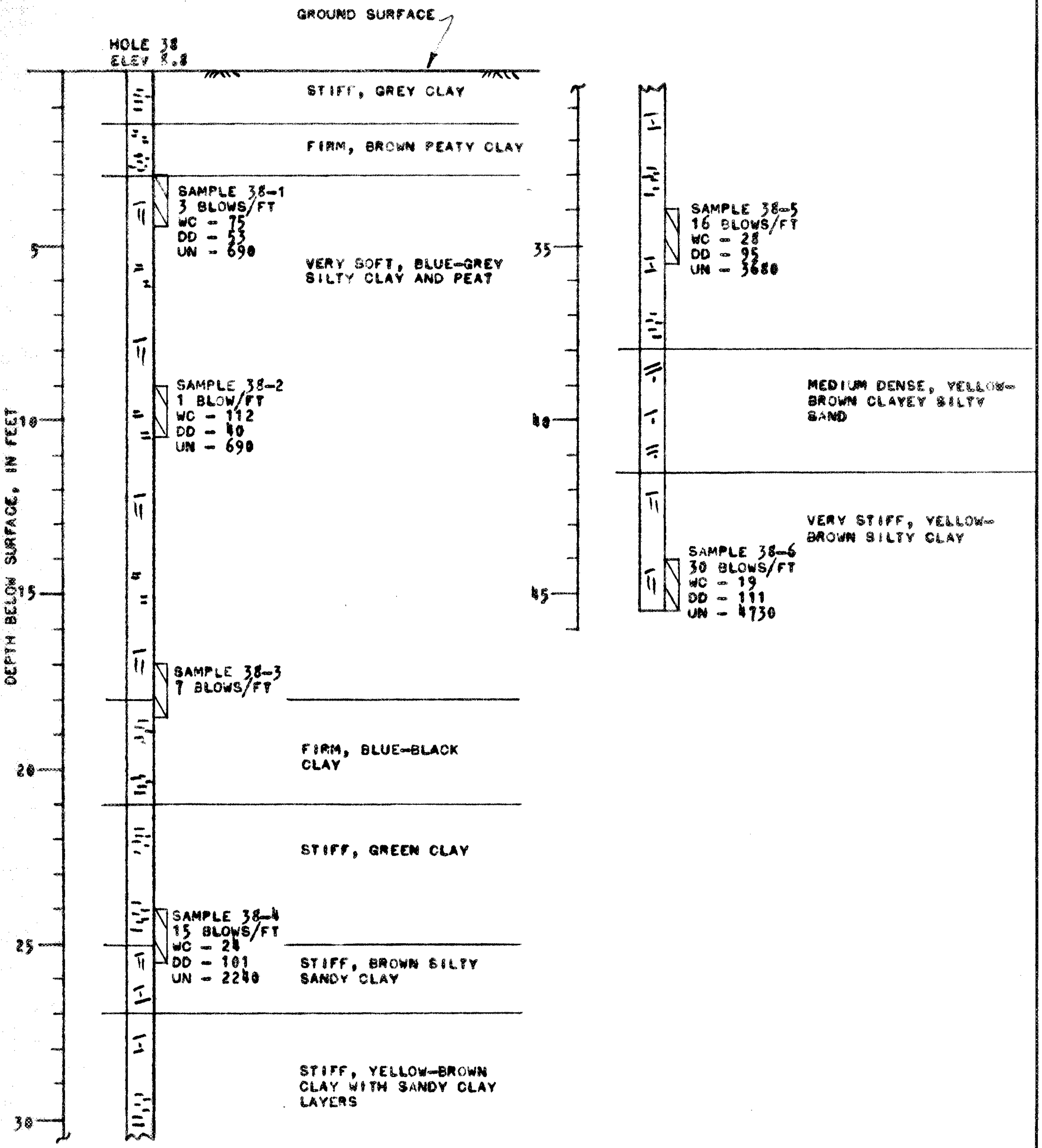


FIG. 27 - LOGS OF BORINGS

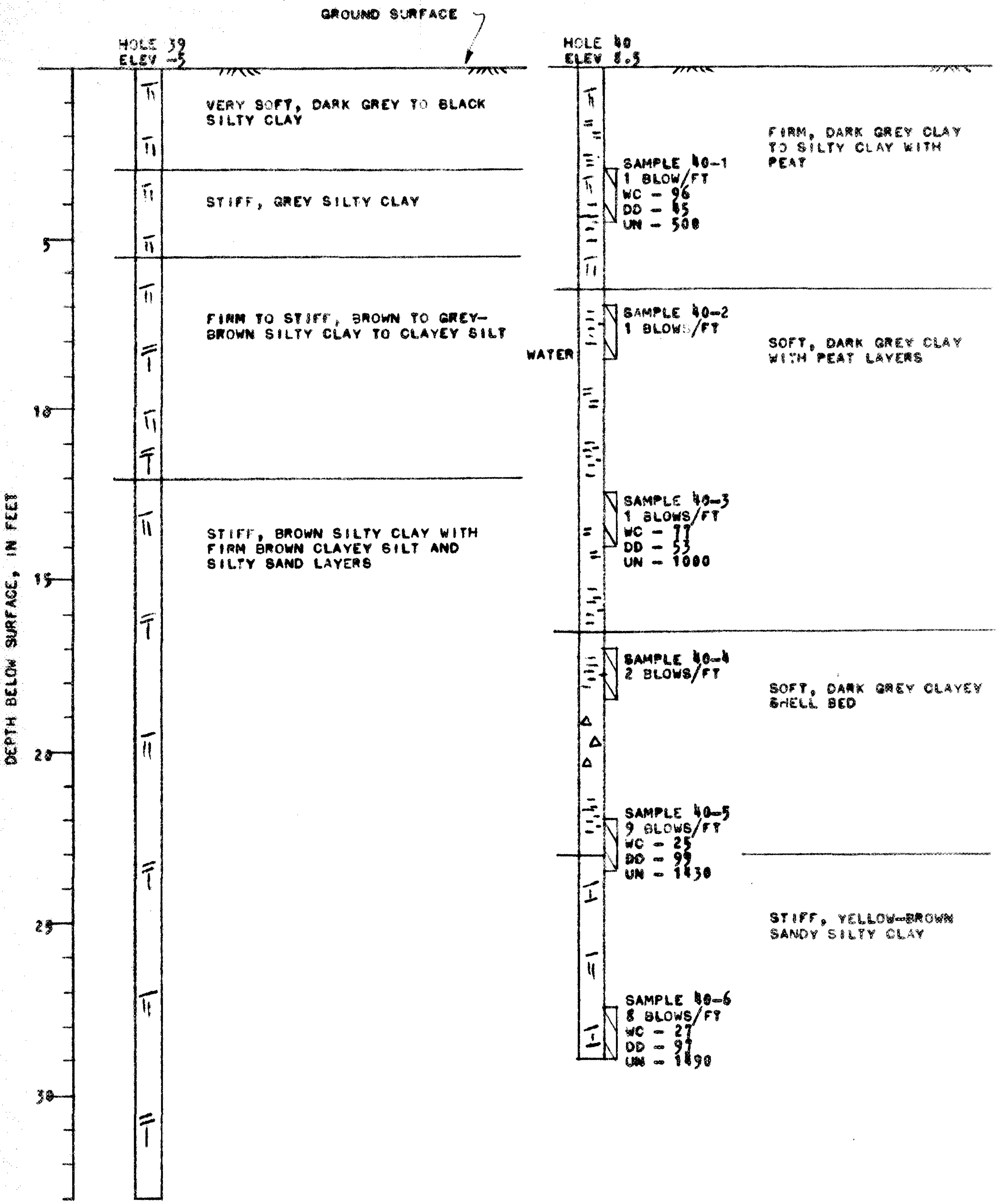

GROUND SURFACE
HOLE 39
ELEV -5
HOLE 40
ELEV 8.5
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
VERY SOFT, DARK GREY TO BLACK SILTY CLAY
STIFF, GREY SILTY CLAY
FIRM TO STIFF, BROWN TO GREY-BROWN SILTY CLAY TO CLAYEY SILT
STIFF, BROWN SILTY CLAY WITH FIRM BROWN CLAYEY SILT AND SILTY SAND LAYERS
WATER
SAMPLE 40-1
1 BLOW/FT
WC - 96
DD - 65
UN - 500
FIRM, DARK GREY CLAY TO SILTY CLAY WITH PEAT
SAMPLE 40-2
1 BLOWS/FT
SOFT, DARK GREY CLAY WITH PEAT LAYERS
SAMPLE 40-3
1 BLOWS/FT
WC - 77
DD - 53
UN - 1000
SAMPLE 40-4
2 BLOWS/FT
SOFT, DARK GREY CLAYEY SHELL BED
SAMPLE 40-5
9 BLOWS/FT
WC - 25
DD - 99
UN - 1430
STIFF, YELLOW-BROWN SANDY SILTY CLAY
SAMPLE 40-6
8 BLOWS/FT
WC - 27
DD - 97
UN - 1490

FIG. 28 - LOGS OF BORINGS

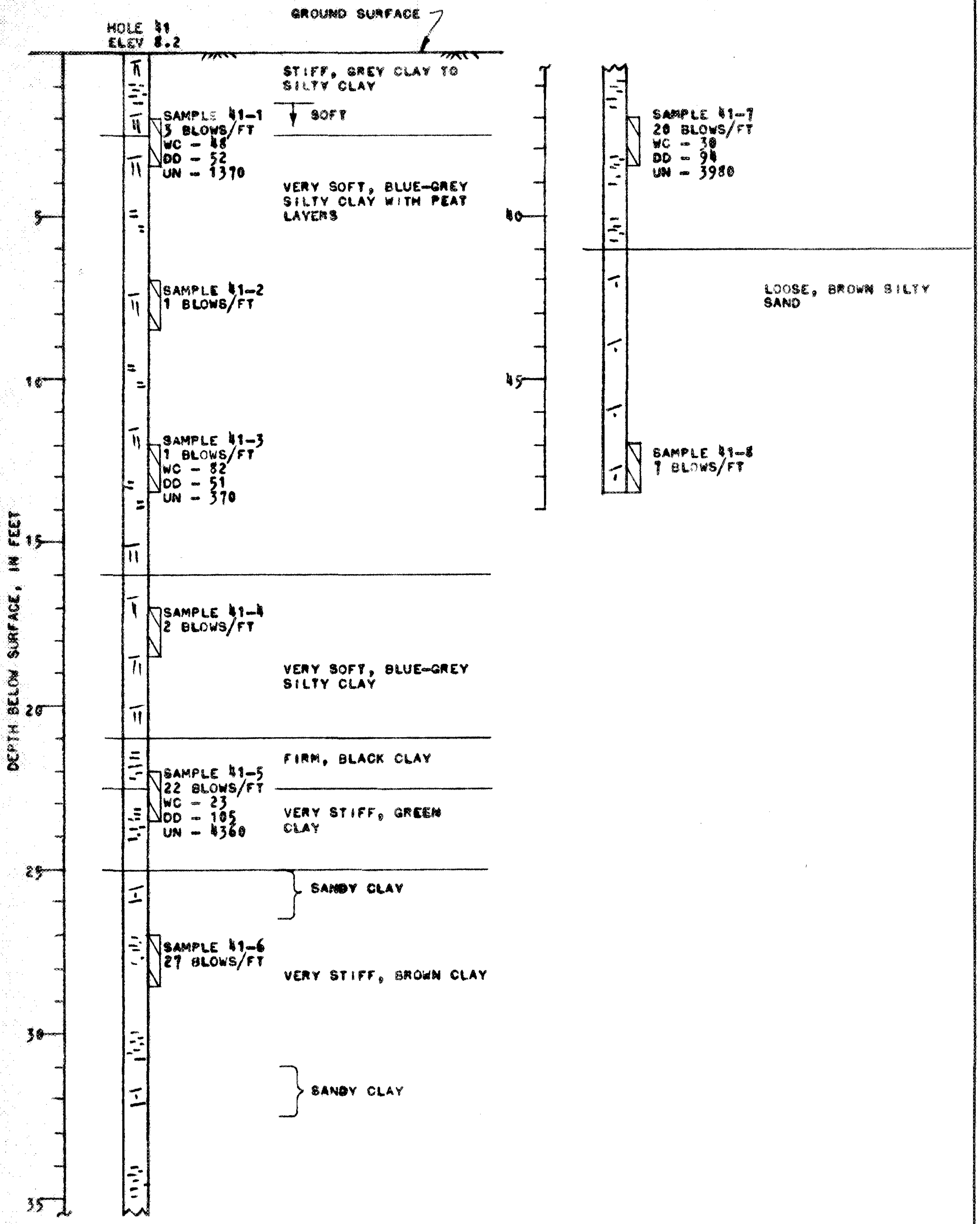


FIG. 29 — LOGS OF BORINGS

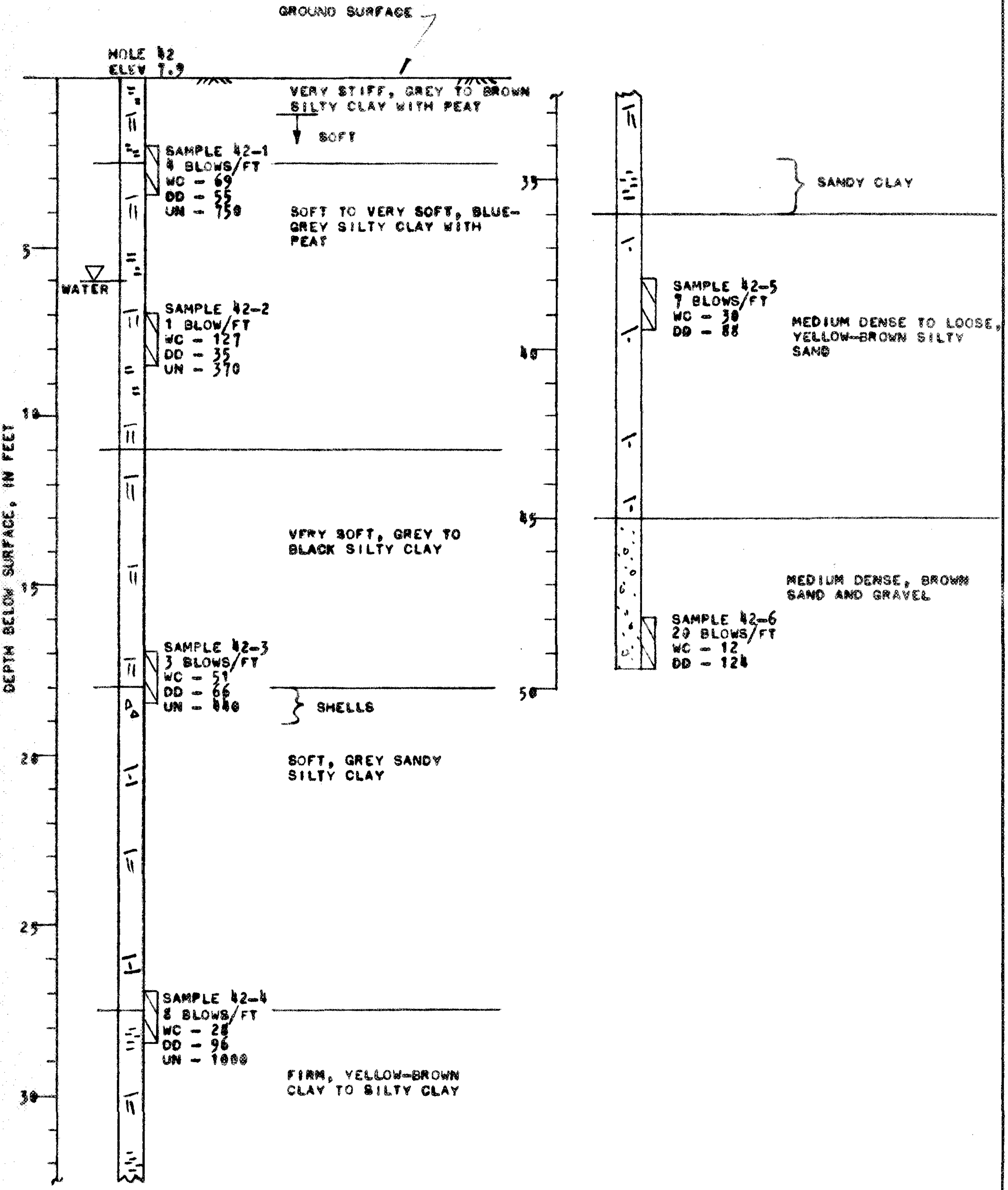


FIG. 30 - LOGS OF BORINGS

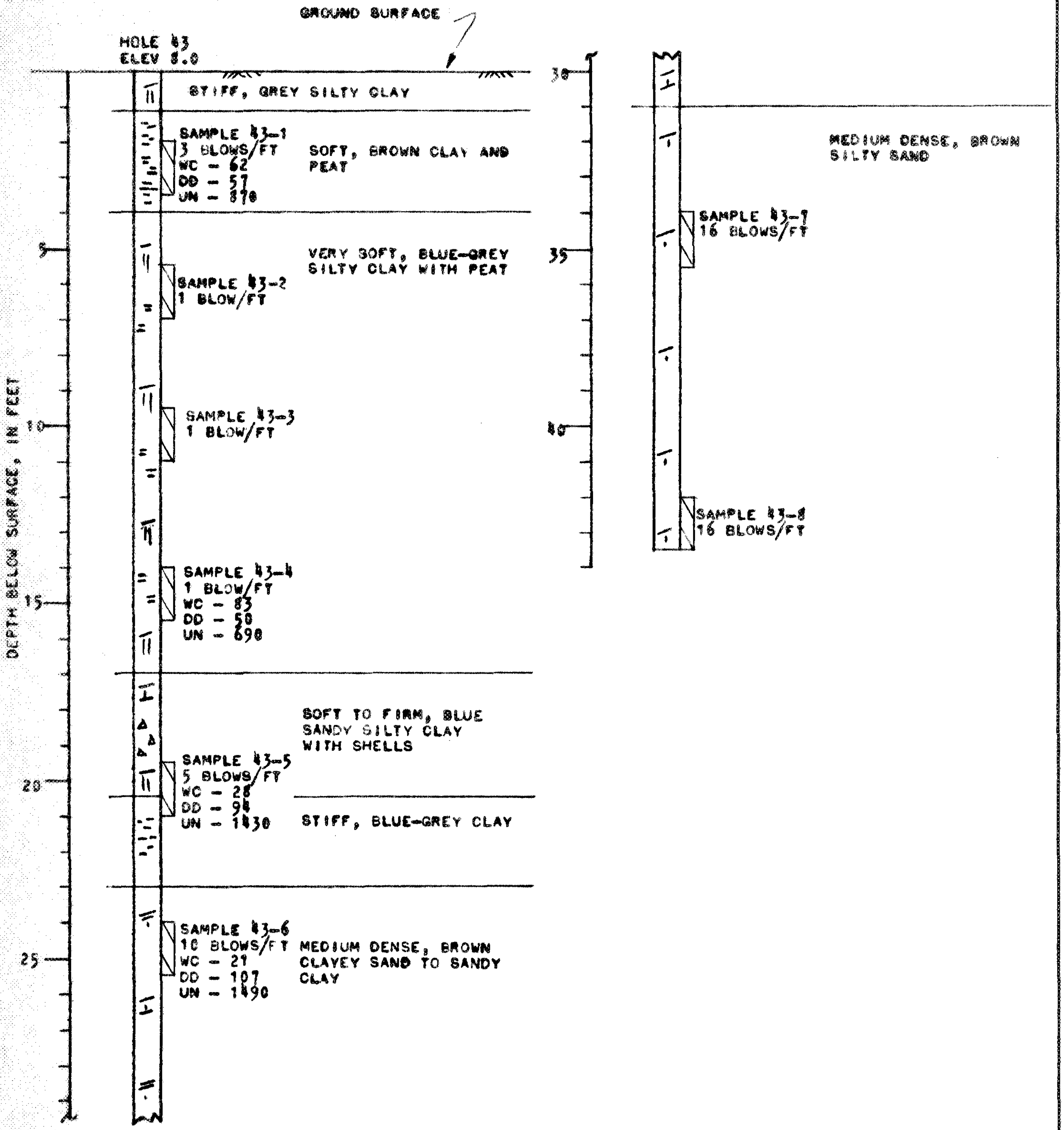


FIG. 31 – LOGS OF BORINGS

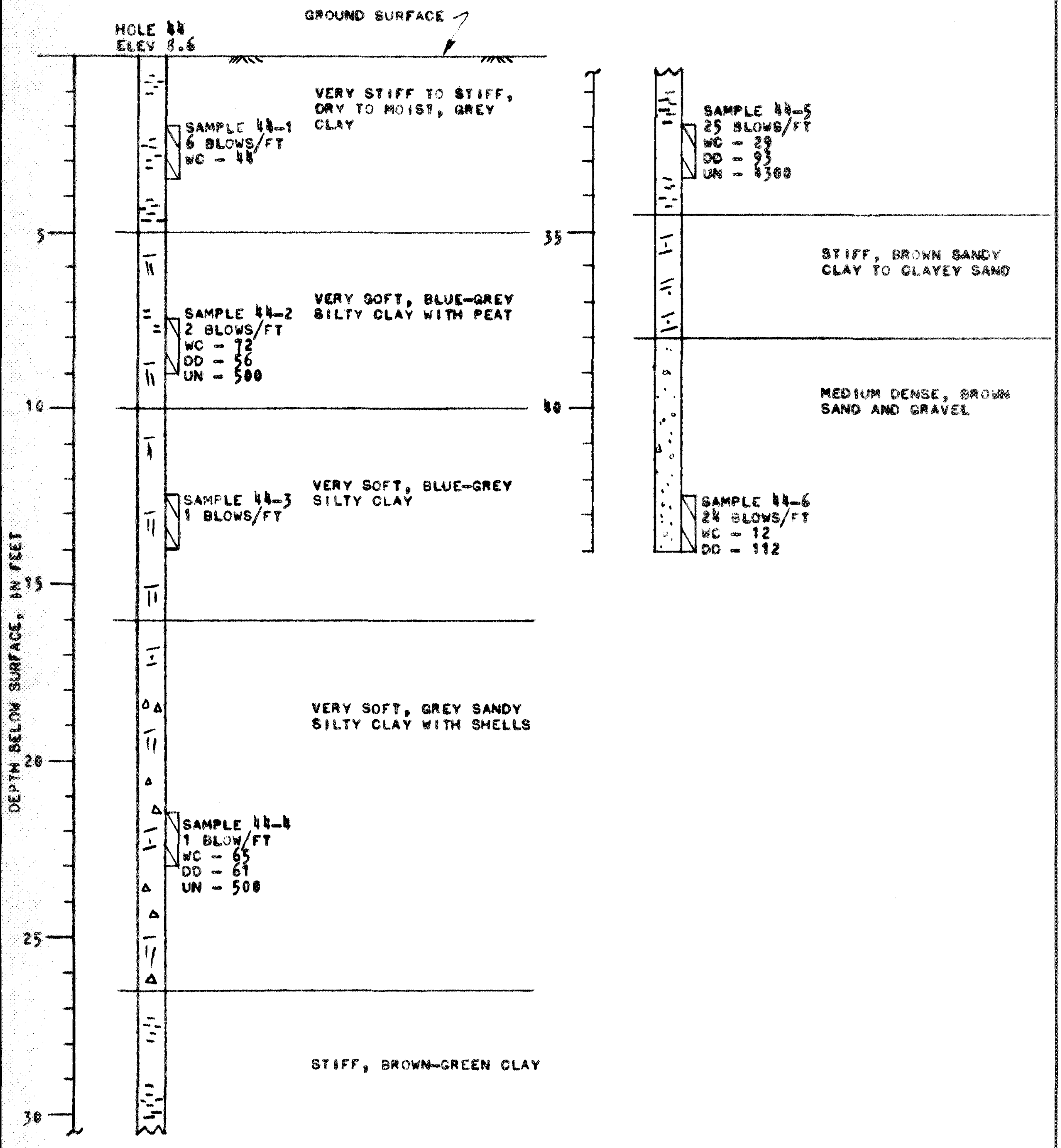


FIG. 32 - LOGS OF BORINGS

LEGEND:

L. = Loose
Stf. = Stiff
V. = Very
D. = Dense
M.D. = Medium Dense
C. = Clay or Clayey
Sa. = Sand or Sandy
Si. = Silt or Silty
A.T.D. = At Time of Drilling
Org. = Organic

FIG. 33-PROFILE OF BORINGS
=GOLD STREET BRIDGE=

DATE: 11 NOV. '60 HORIZ. SCALE: 1"=50'
DWN: C.R.E. VERT. SCALE: 1"=10'

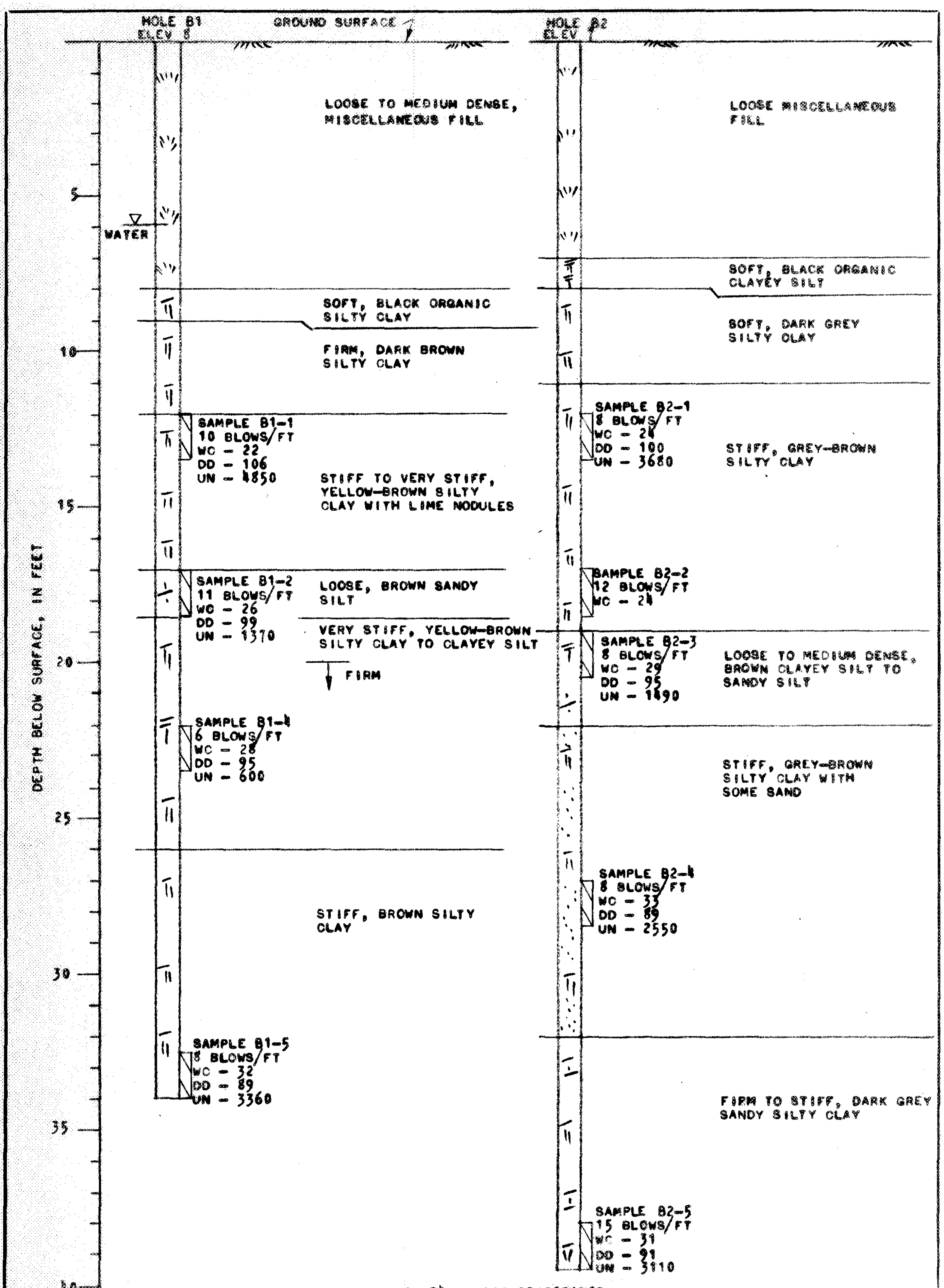


FIG. 34 - LOGS OF BORINGS

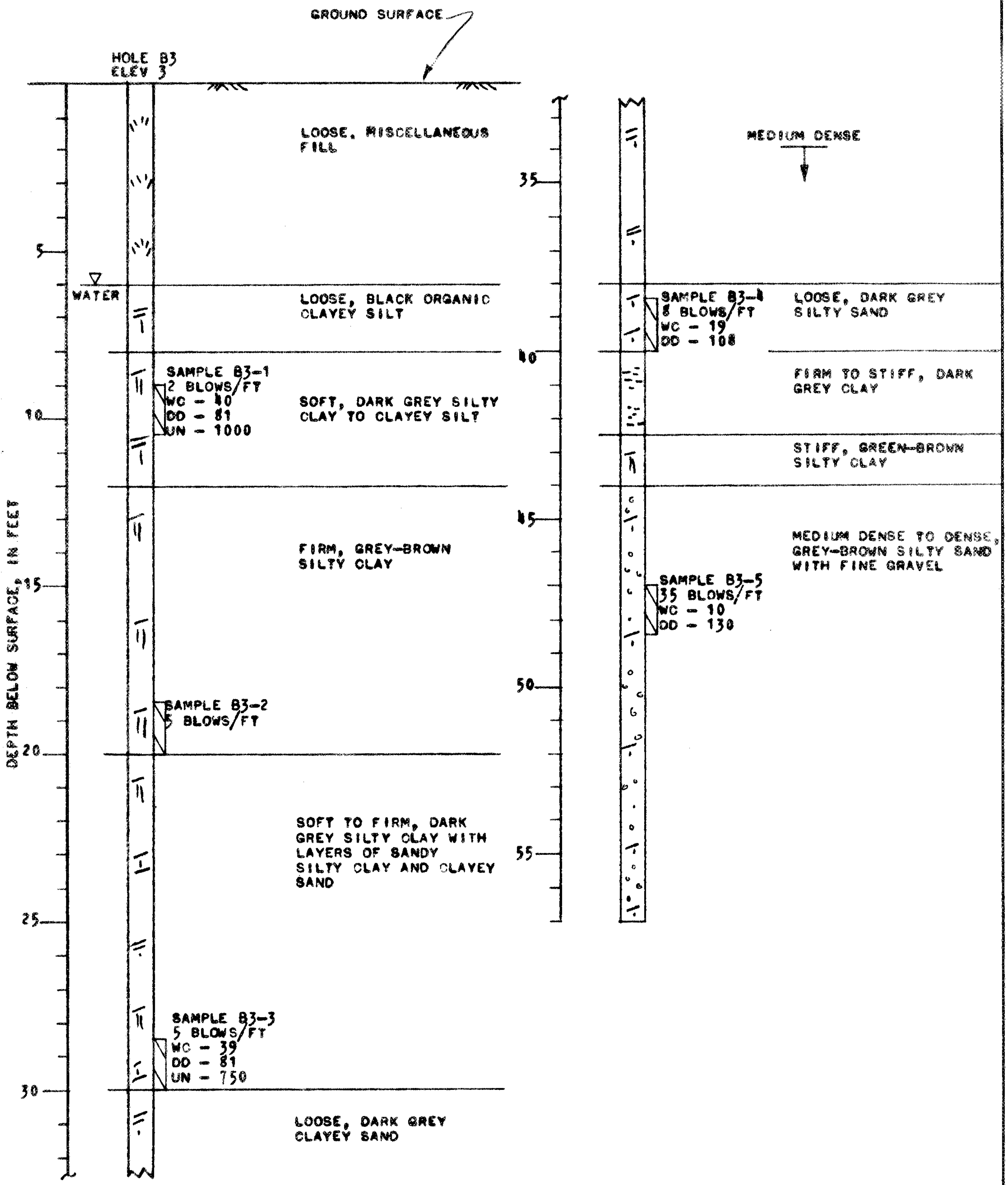

GROUND SURFACE
HOLE B3
ELEV 3
DEPTH BELOW SURFACE, IN FEET
5
10
15
20
25
30
35
40
45
50
55
WATER
LOOSE, MISCELLANEOUS FILL
LOOSE, BLACK ORGANIC CLAYEY SILT
SAMPLE B3-1
2 BLOWS/FT
WC - 40
DD - 81
UN - 1000
SOFT, DARK GREY SILTY CLAY TO CLAYEY SILT
FIRM, GREY-BROWN SILTY CLAY
SAMPLE B3-2
5 BLOWS/FT
SOFT TO FIRM, DARK GREY SILTY CLAY WITH LAYERS OF SANDY SILTY CLAY AND CLAYEY SAND
SAMPLE B3-3
5 BLOWS/FT
WC - 39
DD - 81
UN - 750
LOOSE, DARK GREY CLAYEY SAND
MEDIUM DENSE
SAMPLE B3-4
8 BLOWS/FT
WC - 19
DD - 108
LOOSE, DARK GREY SILTY SAND
FIRM TO STIFF, DARK GREY CLAY
STIFF, GREEN-BROWN SILTY CLAY
MEDIUM DENSE TO DENSE, GREY-BROWN SILTY SAND WITH FINE GRAVEL
SAMPLE B3-5
35 BLOWS/FT
WC - 10
DD - 130

FIG. 35 - LOGS OF BORINGS

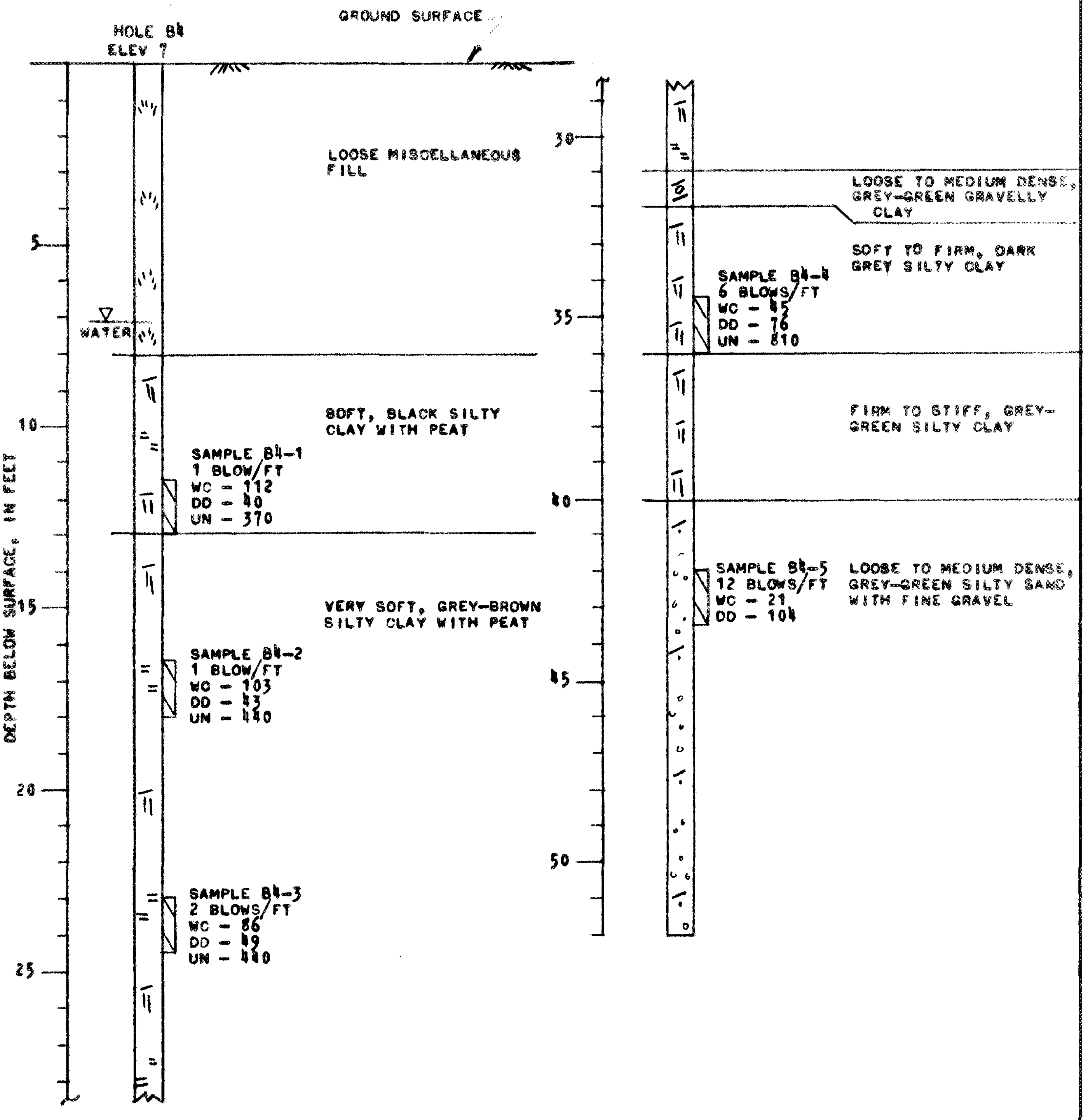


FIG. 36 – LOGS OF BORINGS

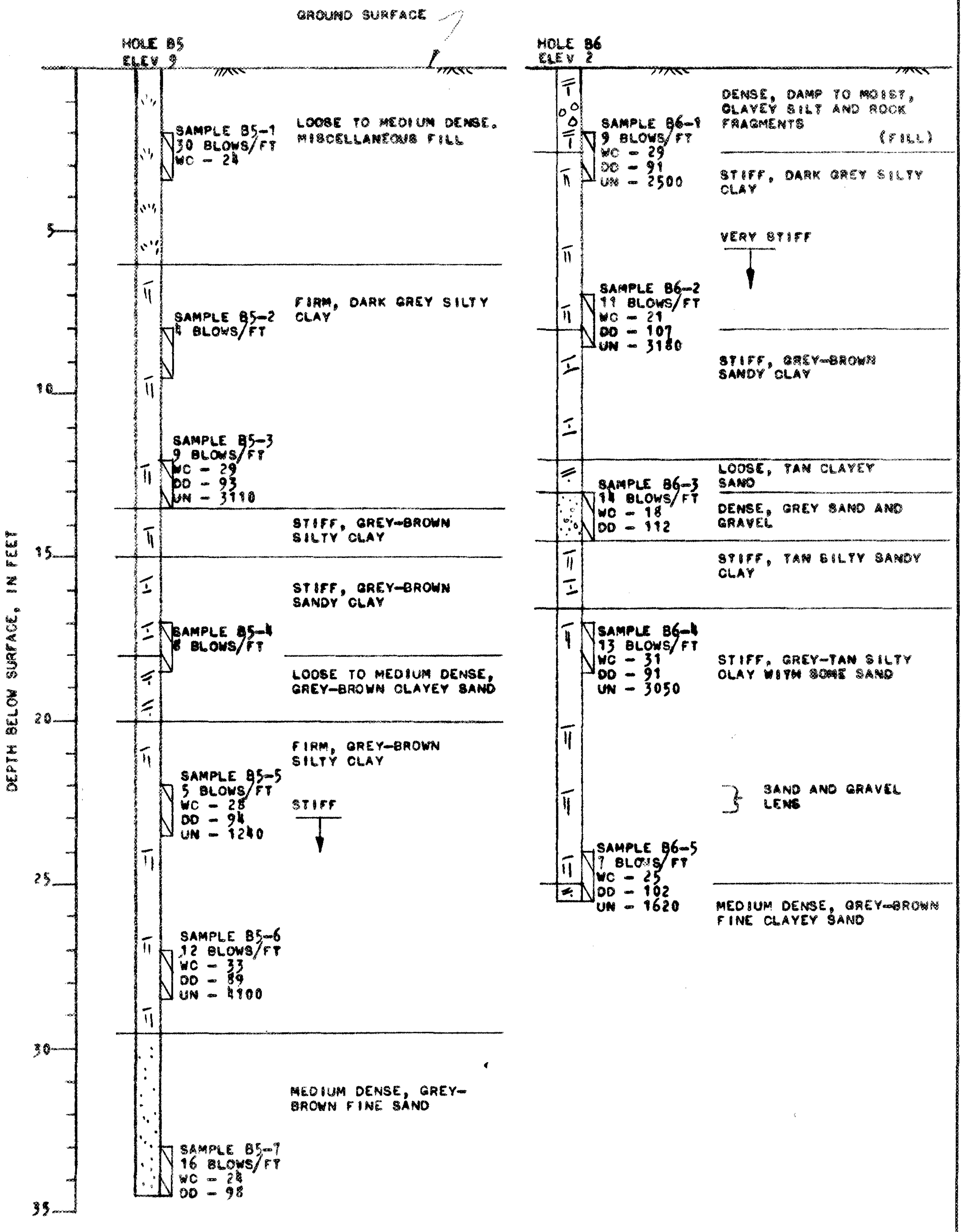


FIG. 37 - LOGS OF BORINGS